ADDIS COLLAGE

ASSESSMENT ON PROJECT MONITORING & EVALUATION SYSTEM IN ETHIOPIAN ROADS ADMINISTRATION

by

Solomon Tadesse

Advisor : Amlaku Melese (Ph. D. Candidate)

May, 2024

Addis Ababa, Ethiopia

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A Thesis Submitted to School of Graduate Studies of Addis College, Department of Construction Technology and Management in Partial Fulfilment of the Requirements for the Degree of Master of Science in Construction Technology and Management

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APPROVAL SHEET

ASSESSMENT ON PROJECT MONITORING & EVALUATION SYSTEM IN ETHIOPIAN ROADS ADMINISTRATION

By

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APPROVAL BY BOARD OF EXAMINERS

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Internal Examiner	Signature	Date
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External Examiner	Signature	Date

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Thank you

Solomon Tadesse

May 2024

DECLARATION

I, Solomon Tadesse, do hereby declare that this Thesis is my original work and that it has not been submitted partially; or in full, by any other person or myself for an award of degree in any other college/University/ institutions.

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This research project has been submitted for examination with my approval as the college Advisor

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Signature: _____

Date: _____ April 2024

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LIST OF ACRONYMS

ERA	Ethiopian Roads Administration
ERA-MS	Ethiopian Roads Authority Management System
M&E	Monitoring & Evaluation
PMBoK	Project Management Body of Knowladge
PQSMD	Performance Quality and System Management Directorate
RRAs	Rural Roads Authorities
RSDP	Road Sector Development Program
SPSS	Statistical Package for the Social Sciences
WB	World Bank
WMS	Works Monitoring System

ABSTRACT

Road construction works monitoring and evaluation of projects is usually one of the key main process of project Management and important components of Good Project Performance This study aimed to assess the works monitoring and evaluation (M&E) system within the Ethiopian Roads Authority (ERA), identifying challenges faced in monitoring and evaluating construction projects, and proposing improvements. Descriptive survey design used and a sample size of 81 respondents were selected using a mix of stratified and purposive sampling. Both primary and secondary data used through questionnaires and document review. Quantitative was analyzed using descriptive statistics whereas qualitative data was analyzed using content analysis. Qualitative data was transformed in to quantitative and analyzed with the help of SPSS version 20. A Cronbach's alpha test was conducted to measure the internal consistency and reliability of the data collection instruments (questionnaires) and was found out to be reliable collected data was edited, sorted, cleaned, and coded for data analysis. The findings were then presented using percentages, frequencies, and tables. Based on the findings the following conclusions are made. ERA demonstrated strengths in project planning, evaluation methods, and adherence to standards, challenges such as inadequate documentation, limited utilization of M&E findings, and insufficient stakeholder engagement were identified. Additionally, the effectiveness of the Ethiopian Roads Authority Management System (ERAMS) was assessed, revealing strengths in project follow-up and data management, but weaknesses in reporting consistency and system security. Key challenges in M&E included information delay, stakeholder engagement, and data accuracy. Proposed improvements included standardizing M&E processes, enhancing staff understanding through training, defining objectives and indicators, and engaging stakeholders more effectively. However, challenges remain in adopting modern M&E tools, enhancing ERAMS features, and addressing informational gaps. These findings provide insights for enhancing the effectiveness of ERA's M&E system and improving project outcomes.

***Key Words**: Monitoring & Evaluation, projects, challenges, ERAMS, improvement*

CHAPTER ONE: INTRODUCTION

1.1. Background of the Study

Over twenty three years of Road Sector Development Program (RSDP), physical works consisting of rehabilitation and upgrading of trunk and link roads, construction of new link roads, construction of rural and Woreda roads and maintenance of federal and regional roads have been carried out by Ethiopian Roads Authority (ERA) now called Ethiopian Roads Administration, Regional Roads Authorities (RRAs), Woreda Road offices (WRO) and the Community and also Municipalities. Series of policy and institutional reforms have been implemented in the sector, which have enhanced implementation capacity of road projects and effectiveness of Road Asset Management. A federal organization called the Ethiopian Roads Administration (ERA) is in charge of the overall network planning, federal road construction, coordination, and creation of road sector regulations and standards (ERA, 2021).

Currently more than 150 thousand KM physical works of roads excluding routine maintenance work have been undertaken by (ERA) and managing hundreds of projects for design, building, maintenance, supervision, and technical support.

According to various studies and as an essential component of project management, Monitoring and Evaluation is a process that helps improve performance and achieve results. Its goal is to improve current and future management of outputs, outcomes and impact. Monitoring and Evaluation (M&E) has evolved over time and has mirrored the paradigm shifts that have occurred in management of projects (Alloysius Augustine Ogbe, 2023).

Monitoring & Evaluation is the systematic collection and analysis of information as a project progresses. It is aimed at improving the efficiency and effectiveness of a project. It consists of those processes performed to observe project execution so that potential problems can be identified in a timely manner and corrective action can be taken when necessary, to control the execution of the project. The key benefit is that project performance is observed and measured regularly to identify variances from the project management plan (Lock, 1996).

As a result, the Ethiopian Roads Administration is employing various monitoring and evaluation practices at various levels to ensure the proper completion of the projects it administers. But the majority of its projects are running over budget and in time (ERA, manual 2014).

Currently one of the practices is being using to monitor the progress of projects under ERA is by Ethiopian Roads Authority Management System (ERAMS).

ERAMS is a tool mounted on a computer server website. It assists in managing of Road Projects Contracts at all levels from Project Engineers performing their duties on contracts through executive chain reporting to Director General. ERAMS is secure website used by Management and ERA staff. It provides centrally connected data storage, designed to allow additional systems to link with data already stored. Ethiopian Roads Administration with the fund found from the World Bank has developed ERAMS computer system in 2014 G.C (ERAMS manual, 2018).

It was designed to assist Engineers directly responsible for managing contracts to have a simple repository for key information which will better able them to manage their time and have information readily available. The Works Monitoring System monitors; Measurement, Progress towards completion based on certified value of work, Progress against time to completion, Estimated final outcome both financial and delays, Reason for change and Tracks key correspondence.

Since an organization's works monitoring & evaluation practice contributes to the accomplishment of project objectives, the purpose of this research is to evaluate the ERA's monitoring & evaluation system in use.

1.2. Statement of the Problem

Several studies have been undertaken so far throughout the world to assess the reasons for the failer of project monitoring & evaluation in road construction projects. Notably among this reasons for the failure of the projects include poor planning of the project implementation process and for the effective monitoring & evaluation of projects (Arditi, 1985). IUCN asserts that a poorly planned project is difficult to monitor and evaluate effectively. Similarly, a well-planned project cannot deliver the desired project outcome but for the compliment of monitoring and evaluation (Idoro, 2012).

Ethiopian Road Administration constructed, administered and initiates many road projects with a huge budget to improve the standard of living of citizens and to facilitate the national economy.

Ethiopian Road Administration has implemented monitoring and evaluation activities to monitor how well road projects are progressing within the allotted time and budget, but the researcher found that certain projects were not finishing on time and that some of them had been terminated.

Currently the ERA is managing hundreds of design, construction, maintenance, supervision, and technical assistance projects. During the project implementation, the ERA emplaces different project monitoring & evaluation practices at different tiers to ensure the successful completion of the projects it manage among them one of the monitoring practices being implemented in the ERA is ERAMS software using Work monitoring System (WMS).

In spite of this range of project monitoring & evaluation practices, most of the projects managed by the ERA face different challenges, including high time and cost overrun as well as quality problem (ERA, manual 2013).

The findings of a study in one country may not be applicable to another due to differences in environment, time, policies, and implementation procedures. As no previous research has been conducted on road projects addressing this specific issue, the researcher aims to fill this gap by studying the project monitoring and evaluation (M&E) system within the Ethiopian Roads Administration. This study will focus on institutional capacity, resources and budgetary allocations for M&E, the connection between planning, budgeting, and M&E, the demand for and utilization of M&E results, implementation of Ethiopian Roads Authority Management System (ERAMS) and data quality and consistency. Therefore, it is crucial to critically assess the overall project monitoring and evaluation system of the organization.

1.3. Research Questions

- How does ERA assess the monitoring & evaluation system of projects?
- What are the challenges encountered while monitoring & evaluation of projects in ERA?
- How to improve the performance of monitoring & evaluation system of projects in ERA?

1.4. Objective of the Study

1.4.1. General Objective

The main objective of this study is to assess the project monitoring & evaluation system in Ethiopian Roads Administration.

1.4.2. Specific Objectives

The specific objectives of the study are:

1. To assess the project monitoring & evaluation System in ERA.
2. To identify the challenges encountered in the process of monitoring & evaluation of construction projects under ERA.
3. To improve the performance of project monitoring & evaluation System.

1.5. Scope of the Study

The practices of contractors and consultants in road projects are not discussed in this study since it aims to emulate Ethiopian Roads Administration's monitoring and evaluation of Federal road projects. Geographically, the research covers federal roads construction projects all over Ethiopia administered by Ethiopian Roads Administration.

The assessment of project monitoring and evaluation system in the Ethiopian Road Administration, which projects executing by Contractors & solely includes road projects controlled by ERA, Ethiopian Roads Authority Management System (ERAMS) is the only subject matter covered by this study. It focuses on the challenges, strengths and weaknesses, improvement and general monitoring and evaluation methods.

1.6. Significance of the Study

ERA is facing cost overrun and delays on majority of its projects despite the ranges of project monitoring & evaluation system. This study aims to point out these challenges and thus improve the project monitoring and evaluation system in order to benefit from the findings and this scenario had not been yet assessed as per the knowledge of the researcher. Therefore, this research helps to figure out the comprehensive of the ERAMS assessment practices that has been implemented under ERA and the research findings help in sharing best practices of the ERA if any for similar organization. Finally, because it can be utilized as a source of information for subsequent research, it will also contribute to our understanding of monitoring and evaluation assessment and the research paves the way for further research in

the subject matter.The study is important in order for the road construction to get along smoothly and for a qualified contractor to be invited to bid, which will allow the road user to be satisfied with the contractor's performance to use the road project timely, in quality and safe conditions due to the selected good performing contractors.

1.7. Limitations of the Study

This study is limited in the sense that it only assesses M&E system of road construction from the client only without incorporating the practice of the Contractors and Consultants of the road projects. It is also limited in the sense of that it only assesses the M&E system of Ethiopian Roads Administration. That is the M&E practices done by other stakeholders involved in federal road projects are not included in this study.

1.8. Organization of the Paper

This research paper is organized in to five chapters. The first chapter deals with the introduction part which encompasses the background of the study, the statement of the research problem, objectives of the study, significance of the study, scope of the study and limitations of the study. The second chapter deals with the review of related literature. Chapter three focused on the research methodology, data collection and procedures, sample and sampling techniques, where as the fourth chapter presented the result analysis and discussion of the data. Finally, conclusions and recommendations were presented under fifth chapter.

CHAPTER TWO: LITRATURE REVIEW

2.1 Theoretical Review

2.1.1. Concepts and Definitions

2.1.1.1 What is a Works Contract in Construction?

The classic 19th-century definition of a contract is 'a promise or set of promises which the law will enforce' (ref. Pollock, Principles of Contract 13th edition). That is, there is mutuality of undertaking passing between the promisor and the promisee. In a contract, the rights and obligations are created by the acts of agreement between the parties to the contractual arrangement.

Construction contracts are agreements between a client or employer and a contractor or other supplier to carry out works in relation to a construction project.

Works are works designed, constructed, installed and removed by the Contractor that are needed for construction or installation of the Works. The Works are what the Contractor has to perform in conformity with the Contract. The contractor is a person or a company whose bid to carry out the works has been accepted by the procuring entity. (World Trade Organization document)

2.1.1.2. Project

According to definitions from many sources, a project can be described as a brief endeavor to produce a special good, service, or result with a clear beginning and finish. When the project's goals have been accomplished, when it is abandoned because its goals won't or can't be attained, or when the project is no longer necessary, the end of the project is said to have been reached (Brown, 2007).

The following are the main characteristics of a project:

- a predetermined goal.
- a life span that is defined and has a start and finish.
- Usually, a number of organizations and specialists are involved.
- Performing a procedure that has never been carried out before.
- Certain time, cost, and performance standards.

First, whether it's 50km road construction project by starting at specific date or building a 10-story apartment complex as soon as feasible, projects have clearly stated goals. The lack of clearly defined objectives in daily organizational activity results in repeated tasks being performed by employees every day.

Secondly, unlike the ongoing duties and obligations of typical professions, projects have a specified completion period since they have a predetermined goal. Workers occasionally migrate from one project to another since they don't want to stay in one place.

Third, unlike much organizational work that is divided up according to functional qualification, projects typically involve the combined efforts of a number of experts. Whether they are engineers, financial analysts, marketing specialists, or quality management professionals, project members collaborate closely under the direction of a project manager rather than working in different offices under separate supervisors to complete a project.

The fourth characteristic of a project is that it is not routine and contains unique characteristic components. This is an issue of degree rather than either/or. Obviously, to accomplish anything that has never been done before, such as building a hybrid (electric/gas) vehicle or putting two mechanical rovers on Mars, it involves solving previously unsolved challenges and developing breakthrough technology. However, even simple construction projects incorporating well-established systems of procedures and processes call for a certain amount of customization that distinguishes them from one another (Larson & Gray, 2011).

Last but not least, initiatives are controlled by precise time, cost, and performance objectives. Projects are evaluated based on their success, cost, and time commitment. These three limitations impose a higher level of transparency than is typical in most professions. These three also serve as an example of one of the main responsibilities of project management, which is to manage the trade-offs between time, cost, and performance while essentially meeting customer expectations (Larson & Gray, 2011).

The triple constraint theory or the iron triangles are two ways to illustrate how three elements in the modern corporate landscape often constrain a project. Scope, Time, and Budget are these. A project can be effective while also achieving the strategic objectives of a company by managing scope, schedule, and budget (Project Management Institute [PMI], 2013).

2.1.1.3 Project Parameters

According to Wysocki (2003), there are five restrictions that operate on every project, and these are the ones that have the greatest impact on the success or failure of the endeavor:

- Scope
- Quality
- Cost
- Time
- Resources

Scope

Scope is a statement that defines the boundaries of the project. It tells not only what will be done but also what will not be done.

Quality

Two types of quality are part of every project that is product quality and process quality.

Cost.

Cost is a major consideration throughout the project management life cycle. The first consideration occurs at an early and informal stage in the life of a project.

Time

The customer specifies a timeframe or deadline date within which the project must be completed. To a certain extent, cost and time are inversely related to one another. The time a project takes to be completed can be reduced, but cost increases as a result.

Resources

Resources are assets, such as people, equipment, physical facilities, or inventory that have limited availabilities, can be scheduled, or can be leased from an outside party. Some are fixed; others are variable only in the long term. In any case, they are central to the scheduling of project activities and the orderly completion of the project.

2.1.1.4 What Are the Characteristics of a Project?

According to William Malsam (2023), there are certain features or characteristics that are unique to projects and differentiate them from the daily operations or other types of activities of an organization. Here are the main characteristics of a project.

1. Any Project Needs a Project Manager and a Project Team

A project team typically includes a project manager and a group of individual team members that work together to achieve a project's goal. Well-run project teams can improve cross-functional collaboration and help your organization deliver high-impact work. (Whitney Vige, 2023)

2. Every Project Needs a Project Plan

Organize your projects with project plans to keep things on track—before you even start. A project plan houses all the necessary details of your project, such as goals, tasks, scope, deadlines, and deliverables. This shows stakeholders a clear roadmap of your project, ensures you have the resources for it, and holds everyone accountable from the start. (Julia Martins, 2024).

3. All Projects Go Through the Same Project Lifecycle

The project life cycle is made up of five project stages: project initiation, project planning, project execution, monitoring & control and project closing. Each of these phases is necessary for the effective delivery of the project. (Jennifer Bridges, 2023).

4. All Projects Share the Same Project Constraints

Project constraints are the general limitations of a project, including time, costs, and risks. Understanding project constraints is important because they affect project performance. (Team Asana, 2024).

5. Every Project Needs Resources

Struggling to understand what resources you have available to you on your projects? A 'resource' usually refers to a team member, but things like budget, equipment, and time are also resources.. A project manager must be able to identify all of the project resources in order to create a resource plan and manage the resources accordingly. When resources are left unaccounted for, it is easy to mismanage them. (Sarah M. Hoban , 2024).

2.1.1.5 Types of projects

Projects can be categorized into four broad general kinds, according to Lock (2007):

1. Civil Engineering, Construction, Petrochemical, Mining, and Quarrying

Projects in this category are those which spring to mind most readily whenever industrial projects are mentioned. Once common feature is that the fulfillment phase must be conducted on a site that is exposed to the elements, and usually remote from the contractor's main office.

These projects incur special risks and problems of organization. They often require massive capital investment, and they deserve (but do not always get) rigorous management of progress, finance, and quality.

For very large industrial projects the funding and resources needed are often too great for one contractor to risk or even find. The organization and communications are therefore likely to be complicated by the participation of many different specialists and contractors, with the main players possibly acting together as a consortium or joint venture company.

2. Manufacturing Projects

Manufacturing projects aim to produce a piece of equipment or machinery, ship, aircraft, land vehicle or some other item of specially designed hardware. The finished product might be purpose-built for a single customer, or the project could be generated and funded from within a company for the design and development of a new product intended for subsequent manufacture and sale in quantity.

Manufacturing projects are usually conducted in a factory or other home-based environment, where the company should be able to exercise on-the-spot management and provide an optimum environment.

Of course, these ideal conditions do not always apply. Some manufacturing projects can involve work away from the home base, for example in installation, commissioning and start-up, initial customer training and subsequent service and maintenance. More difficult is the case of a complex product (such as an aircraft) that is developed and manufactured by a consortium of companies, very possibly overlapping international borders, with all the

consequent problems of risk, contractual difficulties, communication, coordination, and control.

3. Management Projects

This class of projects proves the point that every company, whatever its size, can expect to need project management expertise at least once in its lifetime. These are the projects that arise when companies relocate their headquarters, develop and introduce a new computer system, launch a marketing campaign, prepare for a trade exhibition, produce feasibility or other study report, restructure the organization, mount a stage show, or generally engage in any operation that involves the management and co-ordination of activities to produce an end result that is not identifiable principally as an item of hardware or construction.

Although management projects might not result in a visible, tangible creation, much often depends on their successful outcome. There are well-known cases, for instance, where failure to implement a new computer system correctly has caused serious operational breakdown and has exposed the managers responsible to public discredit. Effective project management is at least as important for these projects as it is for the largest construction or manufacturing project.

4. Scientific research projects

Scientific research project: is a special type of project. These projects is trying to extent the current human knowledge on a matter and by that it has the potential to very profitable but at the same time it may just consume a lot of money over a lot of years without any useable outcome. It is the uncertainty of the outcome that makes this type of projects unique since you cannot totally predict the result of the project.

The result of the scientific research project can have the potential to give birth to projects from the three other types or on some way improve other projects, all depending on what the scientific research is about and what the result is. Besides of the above mentioned four types to categories projects there are numerous ways to further sort the projects.

2.1.1.6. The Project Life Cycle and the Project Cycle Management

The life cycle of a project is the series of phases it goes through from beginning to end. The project's nature and the location where it will be implemented, as well as the company or organizations involved in the project, will all have an impact on the names and numbers of

the stages. The phases may be divided into functional or partial goals, intermediate outcomes or deliverables, specific achievements within the overall scope of work, or cash availability. Phases often have a start and conclusion as well as a control point. A life cycle can be documented using a methodology. The organization, industry, or technology employed may specifically define or mold the project life cycle. Every project has a definite start and finish, but the specific deliverables and activities that take place in between can vary depending on the project. The life cycle offers the essential structure for project management, regardless of the specific activities undertaken (PMI, 2013).

When it comes to the project life cycle, the literature is fairly varied. The project management life cycle is divided into four parts for the sake of this study: initiation, planning, execution, and closure. It is encouraging to note that a sizable body of research views controlling or monitoring as a distinct fifth phase. However, this phase is treated as an essential component of the execution and closure phases for the purposes of this study.

A project is guided through the project management lifecycle, which is a step-by-step structure of best practices. It offers project managers a methodical way to plan, carry out, and complete a project (Coursera, 2023).

Life cycles are important because they show how a project is governed by logic. They aid us in creating our plans for project implementation as well. They help us make judgments about things like how to measure the project's performance and when to dedicate resources to it, among other things. Figure 1 depicts a condensed version of the project life cycle, which is divided into four separate phases: Project initiation, Project planning, Project execution, and Project closure (PMBOK, 2001: p 16).

A. Project initiation:

The project initiation phase is the first phase within the project management life cycle, as it involves starting up a new project. Within the initiation phase, the business problem or opportunity is identified, a solution is defined, a project is formed, and a project team is appointed to build and deliver the solution to the customer. A business case is created to define the problem or opportunity in detail and identify a preferred solution for implementation. (Adrienne Watt; Merrie Barron; and Andrew Barron 2009)

B. Project planning:

This phase's goal is to lay forth a comprehensive plan for how the project must be carried

out and how to ensure its success. Strategic planning and implementation planning are both parts of project planning. Strategic planning develops the project's overall methodology. Planning for implementation involves looking for ways to put those decisions into practice. It entails establishing the tasks, timelines, dependencies, resource plans, budgetary plans, acceptance plans, quality plans, and procurement plans (PMI, 2013).

C. Project execution:

Project execution sometimes called project implementation is the process of putting activities outlined in your project plans into action. (Rachel Hakoune, 2022).

D. Project closure:

"The processes that are performed to conclude all activities across all project management process groups to formally complete the project, phase, or contractual obligations is called Project Closing Process. Upon completion, this process group verifies that the defined processes are completed within all of the process groups to close the project, as appropriate, and formally establishes that the project or phase is complete". (Lucy Brown, 2022).

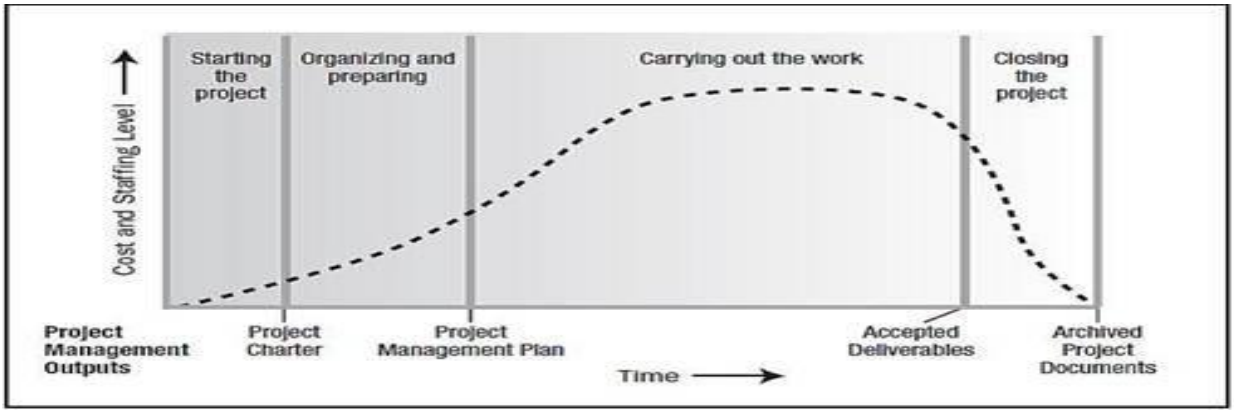


Figure 1. Project life cycle (Source: PMBOK, 2001: p 16).

2.1.1.7. Project Management

Project management has been defined in various ways by various academics, just like the concepts of projects and project life cycles. In summarizing those terms, this study defines project management as follows:

Project management (PM) is the practice of planning and managing projects, from start to finish. It involves the coordination of all the activities and resources you need to meet deadlines and achieve your desired project outcome. Project management is critical because it provides the leadership, motivation, and problem-solving that enables teams to

introduce new products or services, grow revenue, and meet organizational goals (Shira Bar-Joseph, 2023).

Project management includes using tools, people, and processes, according to Lewis (2011).The resources include (but are not limited to) work breakdown structures, PERT scheduling, earned value analysis, risk analysis, and scheduling software. Many businesses that wish to use project management place a lot of focus on the tools. The usage of software is a necessary but not sufficient need for effective project management. The processes or methods are frequently more important because, without the proper management procedures, the tools can only assist you in thoroughly tracking your failures.

Project Cycle Management is conceptually similar to project management with the exception that it stresses managing a project successfully and efficiently throughout all of its phases.

2.1.1.8. Monitoring and Evaluation

Monitoring and evaluation are two distinct but linked methods for gathering information and summarizing the results of how well (or poorly) a project, program, or policy is performing.

It is clear from reading the considerable Monitoring & Evaluation (M&E) literature that these ideas have numerous definitions. In order to best serve their respective objectives, several academics and organizations have defined Monitoring & Evaluation ideas in a variety of ways (Bowden, 1988; PMBOK, 2013; UNDP, 1997; UNICEF, 1991).

In accordance with UNDP (2013), Monitoring can be defined as the ongoing process by which stakeholders obtain regular feedback on the progress being made towards achieving their goals and objectives. Contrary to many definitions that treat monitoring as merely reviewing progress made in implementing actions or activities and focuses on reviewing progress against achieving goals.

On the other hand Evaluation is a firm and independent assessment of either completed or ongoing activities to determine the extent to which they are achieving stated objectives and contributing to decision making. Evaluations, like monitoring, can apply to many things, including an activity, project, programme, strategy, policy, topic, theme, sector or organization. The key distinction between the two is that evaluations are done independently to provide managers and staff with an objective assessment of whether or

not they are on track. They are also more rigorous in their procedures, design and methodology, and generally involve more extensive analysis. However, the aims of both monitoring and evaluation are very similar: to provide information that can help inform decisions, improve performance and achieve planned results.

Likewise, for Phil Bartel (2011) project monitoring is the regular observation and recording of activities taking place in a project or programme. It is a process of routinely gathering information on all aspects of the project. To monitor is to check on how project activities are progressing. It is observation; ─ systematic and purposeful observation. Reporting enables the gathered information to be used in making decisions for improving project performance.

Whereas project evaluation is the process of measuring the success of a project, program or portfolio. This is done by gathering data about the project and using an evaluation method that allows evaluators to find performance improvement opportunities. Project evaluation is also critical to keep stakeholders updated on the project status and any changes that might be required to the budget or schedule (Peter Landau 2022).

The concepts of monitoring and evaluation are not new; everyone uses them to some degree in their personal and professional life. However, the amount of systematic study and attention being given to the topic of monitoring and assessment is increasing at the moment. This is a highly interesting and exciting development because the practice of Monitoring & Evaluation (M&E) can improve evidence-based policy making (including budget decision-making), policy formulation, management, and accountability, among other aspects of good governance. The majority of first-world governments and a small but growing number of developing nations have all realized a large portion of this potential (Mackay, 2007).

By developing methods to assess and understand their performance, an increasing number of governments are attempting to do better. The quantity, quality, and targeting of the goods and services—the state's outputs—as well as the results and impacts that result from these outputs are all measured using these monitoring and evaluation (M&E) systems. These methods are also a means of making it easier to comprehend what leads to both excellent and bad performance (Mackay, 2007).

2.1.2. Types of Project Monitoring

Simran Kaur Arora (2023) asserts different types of project monitoring:

1. Process monitoring

It is also known as activity monitoring. On the other hand, process monitoring mainly aims to track the resources and inputs while understanding how outputs and results are delivered.

2. Beneficiary monitoring

The primary purpose of this is to track the beneficiaries related to the project. This may also include their complaints and satisfaction related to this project. They can be either direct or indirect.

3. Compliance monitoring

It is used to check if the project complies with the grants, local laws, contracts, ethical standards, and overall compliance with the project.

4. Financial monitoring

It is used to track the financial efficiency of the project. In addition, it helps in analyzing the expenditure of the allocated budget.

5. Result monitoring

It helps determine whether the project is on the right path to achieving the expected result. It also helps collect data regarding the project's overall impact and effects.

2.1.3. Monitoring tools

According to Simran Kaur Arora (2023), the four most popular communication methods are project meetings, project monitoring software, progress report and site visit.

Project meeting: This means meeting with your team to discuss the status of the tasks. It helps identify the timeline of a task. You can also add additional tasks or make adjustments.

Project monitoring software: It involves using tools like Gantt charts, timesheets, resource management, or task manager to record, track and manage the task is done and the workload on each member. This software helps in simplifying task tracking.

Progress reports; at regular intervals, progress reports are created for reviewing the project's status. Progress reports make it possible to evaluate one's progress and accomplishments and focus on the outcomes of one's actions, which improves following work plans. At the

management level, reporting provides the foundation for decision-making and learning. Reporting conveys the effectiveness and efficiency with which a project is achieving its goals.

Site Visits; An in-depth collection of project information is made during a site visit for monitoring purposes, which is another crucial communication method in the monitoring of project activities and output progress.

2.1.4. Project Evaluation Methods

Peter Landau (2022) states in his study there are three points in a project where evaluation is most needed. While you can evaluate your project at any time, these are points where you should have the process officially scheduled.

1. Pre-Project Evaluation

In a sense, you're pre-evaluating your project when you write your project charter to pitch to the stakeholders. You cannot effectively plan, staff and control a new project if you've first not evaluated it. Pre-project evaluation is the only sure way you can determine the effectiveness of the project before executing it.

2. Ongoing Project Evaluation

To make sure your project is proceeding as planned and hitting all of the scheduling and budget milestones you've set, it's crucial that you constantly monitor and report on your work in real-time. Only by using project metrics can you measure the success of your project and whether or not you're meeting the project's goals and objectives. It's strongly recommended that you use project management software for real-time and ongoing project evaluation.

3. Post-Project Evaluation

Think of this as a postmortem. Post-project evaluation is when you go through the project's paperwork, interview the project team and principles and analyze all relevant data so you can understand what worked and what went wrong. Only by developing this clear picture can you resolve issues in upcoming projects.

2.1.5. Project Evaluation Steps

According to Peter Landau (2022), regardless of when you choose to run a project evaluation, the process always has four phases: planning, implementation, completion and dissemination of reports.

1. Planning

The ultimate goal of this step is to create a project evaluation plan, a document that explains all details of your organization's project evaluation process. When planning for a project evaluation, it's important to identify the stakeholders and what their short-and-long-term goals are. You must make sure that your goals and objectives for the project are clear, and it's critical to have settled on criteria that will tell you whether these goals and objects are being met.

So, you'll want to write a series of questions to pose to the stakeholders. These queries should include subjects such as the project framework, best practices and metrics that determine success.

By including the stakeholders in your project evaluation plan, you'll receive direction during the course of the project while simultaneously developing a relationship with the stakeholders. They will get progress reports from you throughout the project's phases, and by building this initial relationship, you'll likely earn their belief that you can manage the project to their satisfaction.

2. Implementation

While the project is running, you must monitor all aspects to make sure you're meeting the schedule and budget. One of the things you should monitor during the project is the percentage completed. This is something you should do when creating status reports and meeting with your team. To make sure you're on track, hold the team accountable for delivering timely tasks and maintain baseline dates to know when tasks are due.

Don't forget to keep an eye on quality. It doesn't matter if you deliver the project within the allotted time frame if the product is poor. Maintain quality reviews, and don't delegate that responsibility. Instead, take it on yourself.

Maintaining a close relationship with the project budget is just as important as tracking the schedule and quality. Keep an eye on costs. They will fluctuate throughout the project, so don't panic. However, be transparent if you notice a need growing for more funds. Let your steering committee know as soon as possible, so there are no surprises.

3. Completion

When you're done with your project, you still have work to do. You'll want to take the data you gathered in the evaluation and learn from it so you can fix problems that you discovered in the process. Figure out the short- and long-term impacts of what you learned in the evaluation.

4. Reporting and Disseminating

Once the evaluation is complete, you need to record the results. To do so, you'll create a project evaluation report, a document that provides lessons for the future. Deliver your report to your stakeholders to keep them updated on the project's progress.

How are you going to disseminate the report? There might be a protocol for this already established in your organization. Perhaps the stakeholders prefer a meeting to get the results face-to-face. Or maybe they prefer PDFs with easy-to-read charts and graphs. Make sure that you know your audience and tailor your report to them.

2.1.6. Monitoring and Evaluation Approach

Monitoring and evaluation (M&E) are two essential components of project management that help organizations assess the progress and effectiveness of their programs. Monitoring and evaluation approaches are essential for any organization for measuring the progress and success of any project or program. Evaluation approaches have often been developed to address specific evaluation questions or challenges and they refer to an integrated package of methods and processes. (Eval Community, 2023).

Results-based monitoring and evaluation approach

This approach involves setting specific, measurable, achievable, relevant, and time-bound (SMART) indicators for a project and tracking progress against these indicators. It emphasizes the importance of measuring outcomes and impact rather than just activities. Results-based monitoring and evaluation (M&E) approaches can provide the insight needed

to evaluate performance and strategy. Results-based M&E involves collecting and analyzing data to assess the impact of programs and identify areas for improvement. It helps organizations understand where they need to focus their resources, and allows them to ensure that projects are meeting established goals. Results-based M&E is an invaluable tool for ensuring efficiency, effectiveness and accountability in any organization's operations.

Participatory monitoring and evaluation approach

This approach involves involving stakeholders, including beneficiaries, in the monitoring and evaluation process. It can help ensure that the evaluation is sensitive to the needs of those who are intended to benefit from the project. It provides an insight into the progress of the program or project and helps to identify problems that need immediate attention. Participatory monitoring and evaluation approaches help to ensure that all stakeholders are engaged in the evaluation process, bringing a wider perspective and enabling more effective feedback. Through this method, progress and impact can be better understood, allowing for better decisions in order to reach desired outcomes. Participatory approaches are therefore an important part of monitoring and evaluation for any project or program.

Theory-based evaluation approach

This approach involves examining the underlying theory of change that a project is based on to determine whether the assumptions about how the project will work are valid. It can help identify what changes are likely to occur and how they can be measured. The Theory-based Evaluation approach is a powerful monitoring and evaluation tool that can help organizations make informed decisions about their programs and services. This approach focuses on the underlying theories of change that drive program implementation and outcomes, and helps to identify and address gaps in the program's effectiveness. It also serves as a way to measure the progress of a program and its impact on the target population. Theory-based evaluation is a comprehensive approach that considers both qualitative and quantitative data, and is useful for understanding the complex relationships between program activities and outcomes. It is an important tool for organizations to ensure that their programs are achieving their intended goals and objectives.

Utilization-focused evaluation approach

The Utilization-focused Evaluation approach is an effective tool for monitoring and evaluation users. It is a user-oriented approach that focuses on the utilization of evaluation results by intended users and stakeholders. This approach encourages users to be actively involved in the evaluation process, from planning to implementation to reporting. It enables users to assess the impact of the evaluation results on their decision-making and practice. The Utilization-focused Evaluation approach also encourages users to use the results for further improvement and refinement of their strategies and practices. This approach helps users to identify areas for improvement and to develop strategies to address them. In addition, it helps users to determine the most effective ways to use the evaluation results in order to achieve their desired outcomes.

Monitoring and Evaluation (M&E) for learning

Monitoring and Evaluation (M&E) for learning is an approach that prioritizes learning and program improvement, as opposed to solely focusing on accountability and reporting to external stakeholders. It is an iterative process that involves continuous monitoring, feedback, and reflection to enable learning and adaptation. By engaging stakeholders in the evaluation process, M&E for learning can identify strengths, weaknesses, and areas for improvement, and use this information to guide program design and implementation. Ultimately, the goal of M&E for learning is to create a culture of continuous learning within organizations, where learning and adaptation are integrated into every aspect of program design and implementation.

Gender-Responsive Evaluation

A gender-responsive evaluation is an approach to understanding the impacts of a project, policy, or program on women, men and gender diverse populations. It is a valuable tool to assess how different gender groups are affected by a particular project, as well as how to ensure that the project meets its objectives in a way that is equitable and beneficial to all genders. Gender-responsive evaluations also provide useful information on how different

gender groups interact and participate in projects or policies, which can help identify any potential inequities in access or outcomes.

Case study evaluation approach

The case study evaluation approach is a powerful tool for monitoring and evaluating the success of a program or initiative. It allows researchers to look at the impact of a program from multiple perspectives, including the behavior of participants and the effectiveness of interventions. By using a case study evaluation approach, researchers can develop a comprehensive picture of the program's strengths and weaknesses, identify areas for improvement, and make recommendations for future action. This approach is particularly useful for programs that involve multiple stakeholders, as it allows for the examination of both individual and collective outcomes. Furthermore, it is a valuable tool for assessing the program's effectiveness over time, as it enables researchers to compare the results of different interventions and track changes in program outcomes.

Process monitoring and evaluation approach

This approach focuses on how a project is implemented, rather than the outcomes. It can help identify problems in project implementation, such as delays or budget overruns, and make recommendations for improvement. The process monitoring and evaluation approach is a systematic way of tracking and assessing the progress of a project or program. It involves regularly collecting, analyzing, and interpreting data to determine the effectiveness of a program and to identify areas for improvement. Monitoring and evaluation are two distinct but related functions. Monitoring is the continuous collection of information to track the progress of a program or project over time. Evaluation, on the other hand, is the periodic assessment of a program or project to determine its effectiveness and impact. The process monitoring and evaluation approach provides a comprehensive understanding of the program's strengths and weaknesses, enabling decision-makers to make informed decisions about how to improve the program and ensure its success.

Impact evaluation approach

This approach involves assessing the causal impact of a project on its beneficiaries or the wider community. It can help determine whether a project has achieved its intended outcomes and whether the benefits outweigh the costs. The impact evaluation approach is a monitoring

and evaluation technique used to assess the outcomes of a program or intervention. This approach helps to identify the changes that have occurred due to the program or intervention and measure the effectiveness of the program. It is used to evaluate the impact of the program on the target population, such as whether the program has achieved its desired objectives. The impact evaluation approach helps to identify areas of improvement and assess the cost-effectiveness of the program. It also helps to determine whether the program has met its goals and objectives, and if not, what changes should be made in order to achieve the desired results. This approach is a valuable tool for organizations to assess the success of their programs and interventions.

Therefore, an effective monitoring and evaluation approach can help to identify whether an organization's goals are being achieved in a timely manner.

Overall, organizations can use one or more of these approaches to monitoring and evaluation, depending on the needs of their project and the resources available to them. Although there are many different types of monitoring and evaluation approaches available, they all share the same goal – to understand the impact of an organization's programs and projects on its stakeholders.

2.1.7. Monitoring and Evaluation System

A well-designed and organized system that ensures the right data are being collected at the right time during and after project implementation and that this data will help to guide project implementation and strategic decisions can be used to institutionalize M&E of projects in organizations. M&E of projects is increasingly recognized as a central management function for organizations. Additionally, it will guarantee that an appropriate amount of time and money is spent gathering and analyzing data, compiling and reporting the information, and that project employees and stakeholders won't be overburdened by the amount of data acquired (Pasanen & Shaxson, 2016).

2.1.8 When a Project is Successfully Completed

According to Fahad Usmani (2022) projects is successful when all project stakeholders are satisfied or happy and accept the deliverable.

A project is successfully ended when:

- The project is completed on time.
- The project is completed within budget.
- The project fulfills all requirements.
- The stakeholders are satisfied.

The last criteria are most important. You often fulfill all requirements, but if the stakeholders are unsatisfied, you cannot say your project is successfully completed.

2.1.9. Ethiopian Roads Authority Management System (ERAMS)

The Ethiopian Roads Authority Management System (ERAMS) is a tool installed on a computer server in the ERA Data Centre that can be accessed via the Intranet or the Internet with a secure website.

- The system's main goals are to manage the overall progress of road project and performance of contracts, contractor and consultants by the system. And aid in the management of project contracts, from Junior Project Engineers who administer contracts all the way up to the Director General of the authority (ERAMS user manual, 2018).
- The system's major purpose is to provide the contract administrator and management with accurate project information. From the detail design stage until the conclusion of the works, it is essential for reporting contract of contractor, and consultant performance.
- It provides management information from a single source, allowing for improved management responsibility and accountability while also providing better budget allocation certainty by validating estimates through the Estimate Validation System (EVS) (ERAMS user manual, 2018).
- More efficient and thorough scrutiny of Works and Maintenance Contract Bids by analyzing bids using the Tender Analysis System (TAS), which allows delegated individuals to compare bidder rates to the Engineer's Estimate and any other bidder's bid, assisting in identifying inconsistent rates that may indicate a misinterpretation or error in the Bill of quantity.
- The Works Monitoring System is used to track the progress of building and maintenance projects (WMS) allowing Monitoring of physical and financial progress on a regular basis A focus on final costs and expected completion dates, as well as reasons for overspending

and delays that can be addressed in future contracts Analysis of common characteristics that lead to increased costs and delivery delays (ERAMS user manual, 2018).

- Improving Contractor and Consultant Performance through the Performance Appraisal System (PAS) provides a simple input for Performance Monitoring, identifying the need for Consultants, Contractors, and ERA to improve their performance during contracts and provides a simple input for Performance Monitoring. Provides a straightforward input for Performance Evaluation.

Work Monitoring System (WMS) Setting up Planned S-Curves: The purpose of including the plan curve is to enable value of work done to be compared to the value of the plan.

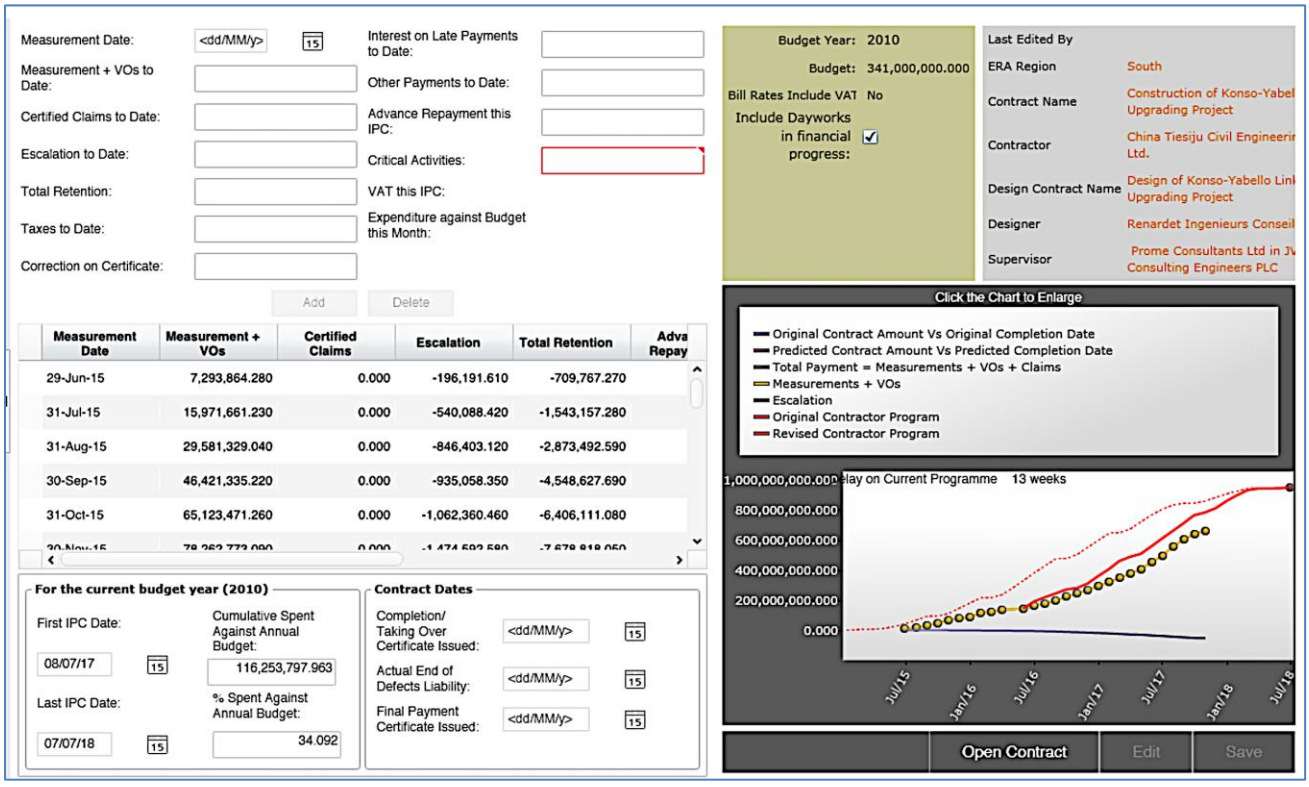


Figure 2 WMS Measurement

Earned Value Management Approach

EVM gives an at a glance view of the performance of a works contract and as such is a useful tool for both those directly managing a specific contract and to those managers reviewing and monitoring many contracts. It allows a quick focus on what needs urgent attention.

Earned Value Management (EVM) is a project management technique that objectively tracks physical accomplishment of work

More Elaborately:

- Earn Value Management (EVM) is a technique used to track the progress and status of a project & forecast the likely future performance of the project.
- EVM integrates the scope, schedule and cost of a project.
- EVM provides stakeholders with answers to many questions related to project performance.
- EVM can be used to show past performance of the project, current performance of the project and predict the future performance of the project by use of statistical techniques.
- Good planning coupled with effective use of the EVM technique will reduce a large amount of issues arising out of schedule and cost overruns.

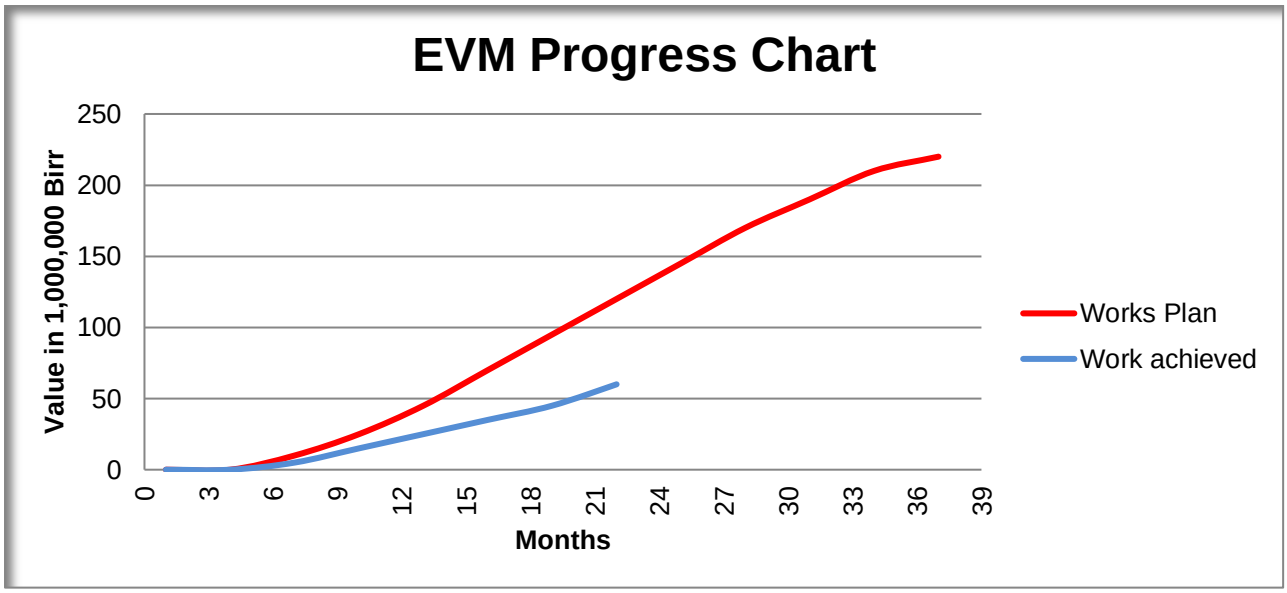
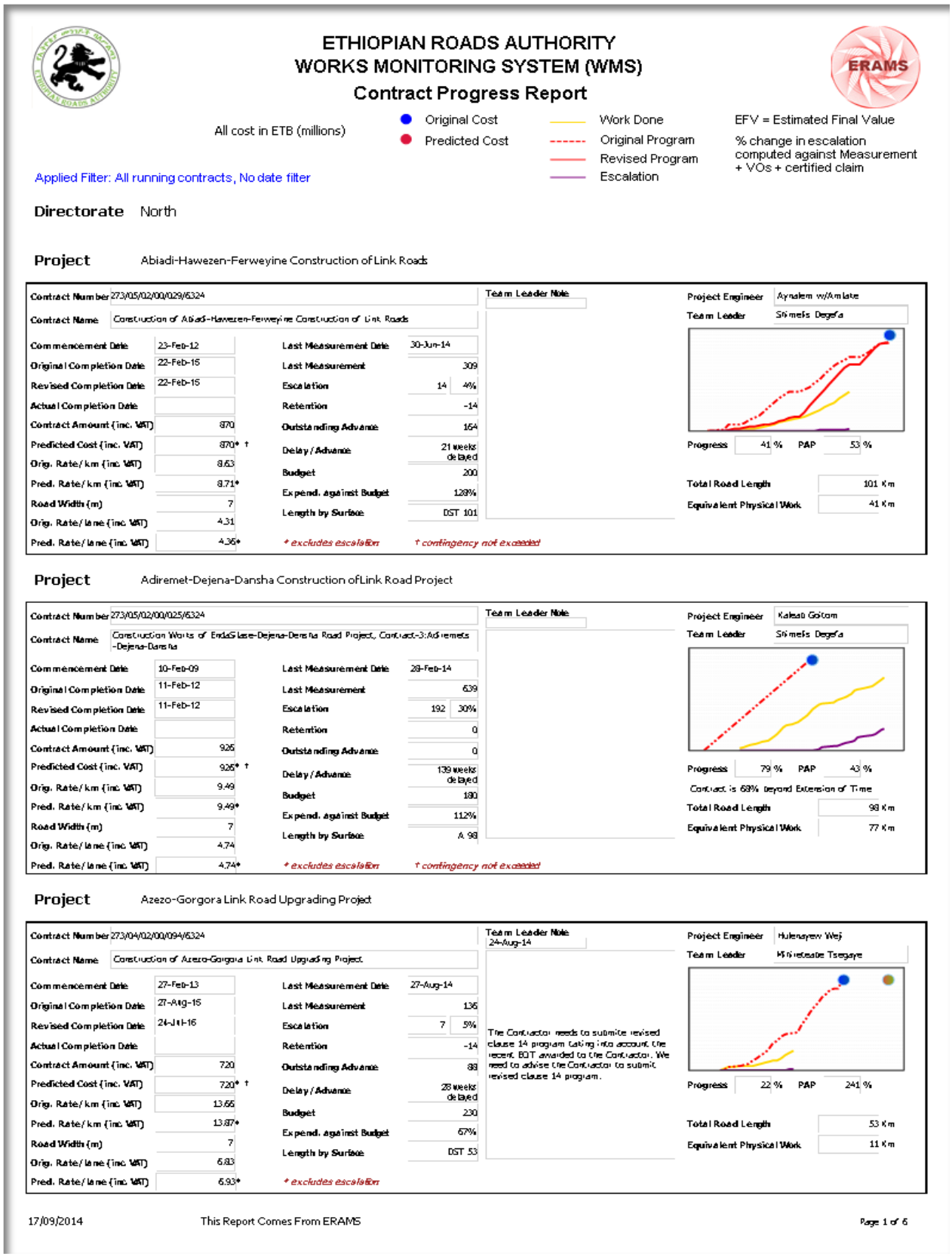


Figure 3 EVM Basic Chart

Contract Progress Report

From the ERAMS this report gives details of each contract along with a miniature graphical representation of contract position.

Implementation Directors will list only those works or maintenance contracts for which it is responsible. Director General and Deputy Director Generals will be able to choose a Directorate.



ETHIOPIAN ROADS AUTHORITY
WORKS MONITORING SYSTEM (WMS)
Contract Progress Report

ERAMS

All cost in ETB (millions)

Original Cost
Predicted Cost
Work Done
Original Program
Revised Program
Escalation

EFV = Estimated Final Value
% change in escalation computed against Measurement + VOs + certified claim

Applied Filter: All running contracts, No date filter

Directorate North

Project Abiadi-Hawezen-Ferweyine Construction of Link Roads

Contract Number	273/05/02/00/029/6324			Team Leader Note	
Contract Name	Construction of Abiadi-Hawezen-Ferweyine Construction of Link Roads				
Commencement Date	23-Feb-12	Last Measurement Date	30-Jun-14	Project Engineer	Aynalem w/Amlate
Original Completion Date	22-Feb-15	Last Measurement	309	Team Leader	Shimelis Degefa
Revised Completion Date	22-Feb-15	Escalation	14 4%		
Actual Completion Date		Retention	-14		
Contract Amount (inc. VAT)	870	Outstanding Advance	164		
Predicted Cost (inc. VAT)	870* †	Delay / Advance	21 weeks delayed		
Orig. Rate/km (inc. VAT)	8.63	Budget	200		
Pred. Rate/km (inc. VAT)	8.71*	Expend. against Budget	128%		
Road Width (m)	7	Length by Surface	DST 101		
Orig. Rate/lane (inc. VAT)	4.31				
Pred. Rate/lane (inc. VAT)	4.36*				

Progress 41 % PAP 53 %
Total Road Length 101 Km
Equivalent Physical Work 41 Km

* excludes escalation † contingency not exceeded

Project Adiremet-Dejena-Dansha Construction ofLink Road Project

Contract Number	273/05/02/00/025/6324			Team Leader Note	
Contract Name	Construction Works of EndaSilase-Dejena-Dansha Road Project, Contract-3:Adiremets-Dejena-Dansha				
Commencement Date	10-Feb-09	Last Measurement Date	28-Feb-14	Project Engineer	Kalsa Gotom
Original Completion Date	11-Feb-12	Last Measurement	639	Team Leader	Shimelis Degefa
Revised Completion Date	11-Feb-12	Escalation	192 30%		
Actual Completion Date		Retention	0		
Contract Amount (inc. VAT)	926	Outstanding Advance	0		
Predicted Cost (inc. VAT)	926* †	Delay / Advance	139 weeks delayed		
Orig. Rate/km (inc. VAT)	9.49	Budget	180		
Pred. Rate/km (inc. VAT)	9.49*	Expend. against Budget	112%		
Road Width (m)	7	Length by Surface	A 98		
Orig. Rate/lane (inc. VAT)	4.74				
Pred. Rate/lane (inc. VAT)	4.74*				

Progress 79 % PAP 43 %
Contract is 68% beyond Extension of Time
Total Road Length 98 Km
Equivalent Physical Work 77 Km

* excludes escalation † contingency not exceeded

Project Azezo-Gorgora Link Road Upgrading Project

Contract Number	273/04/02/00/094/6324			Team Leader Note 24-Aug-14	
Contract Name	Construction of Azezo-Gorgora Link Road Upgrading Project				
Commencement Date	27-Feb-13	Last Measurement Date	27-Aug-14	Project Engineer	Hulenayew Wej
Original Completion Date	27-Aug-15	Last Measurement	136	Team Leader	Mitiku Teade Tsegaye
Revised Completion Date	24-Jul-16	Escalation	7 5%		
Actual Completion Date		Retention	-14		
Contract Amount (inc. VAT)	720	Outstanding Advance	88		
Predicted Cost (inc. VAT)	720* †	Delay / Advance	28 weeks delayed		
Orig. Rate/km (inc. VAT)	13.66	Budget	230		
Pred. Rate/km (inc. VAT)	13.87*	Expend. against Budget	67%		
Road Width (m)	7	Length by Surface	DST 53		
Orig. Rate/lane (inc. VAT)	6.83				
Pred. Rate/lane (inc. VAT)	6.93*				

The Contractor needs to submite revised clause 14 program taking into account the recent EOT awarded to the Contractor. We need to advise the Contractor to submit revised clause 14 program.

Progress 22 % PAP 241 %
Total Road Length 53 Km
Equivalent Physical Work 11 Km

* excludes escalation

17/09/2014 This Report Comes From ERAMS Page 1 of 6

Figure 4 WMS Sample Contract Progress Report

2.1.10. Challenges in the process of Monitoring & Evaluation of Projects

Numerous challenges have been faced in the implementation of global projects. Project monitoring and evaluation are crucial elements in raising project performance as a remedy. The types of actions taken and the minimal level of attention paid to the exercise are the main determinants of these challenges. Every monitoring plan's effectiveness and success mostly depend on the institution's or individual's ability to carry it out. Thus, the implementation of project monitoring and evaluation is hampered by insufficient institutional capacities. Based on a thorough examination of the goals and outcomes, institutions' capacity building is crucial for participation as well as for rapidly correcting subpar performance (Bhagavan & Virgin 2004).

There are many different challenges that influence the success of project monitoring and evaluation (M&E), ranging from the people who communicate or implement the M&E to the systems or mechanisms in place for co-ordination and control. Due to the M&E function's cross-functionality and cross-disciplinary nature, as well as the diverse interests of those participating in the process, executing efficient M&E presents a number of challenges. Any project that is not properly monitored and evaluated will definitely result into project failure. The implementation of M&E system may lead to these difficulties.

The following challenges are listed by various literatures while institutionalizing an M&E system (Eval Community survey 2023,Sharp Development Solution Consulting 2023, UNDP 2009, Robert Lahey 2015, Qudratullah Jahid 2019);

Bad Data

You will almost certainly come across a great deal of badly structured, unverifiable data as you embark on your journey towards monitoring and evaluation from the outset of your journey as you know nothing can be worse than not having any data at all.

You can use data to discover insights into Monitoring and Evaluation, and when designing systems for Monitoring and Evaluation, as well as understanding why data are not collected well or are not being verified properly, you should work with the data as part of your insights discovery process. There is this idea that data is alive and that it provides little glimpses into the true nature of what’s happening. This data must be nurtured, over its lifespan, and with great care.

As part of the impact insight assembly line, be sure to create systems that minimize the

possibility of bad data by cleverly using dropdowns and incentives as well as creating inbuilt accountability and verification systems, and above all, be sure to hold what is fundamental – be ready to shift tack if you find a certain key performance indicators (KPIs) or method of collecting it to be unnecessary and distracting.

Lack of Technical Expertise

A significant challenge associated with the development of effective monitoring and evaluation processes and activities can be the lack of technical expertise within an organization. The majority of an organizations surveyed said that a lack of staff knowledge, skills, and/or tools made it difficult for them to conduct monitoring and evaluations. (Eval Community survey 2023).

The main challenge faced is that the knowledge, skills and competence required for those aspiring and performing duties related to monitoring and evaluation of projects is limited.

Informational Gap

Indeed, it is common saying that information is power. The level of rationality of a project will depend to a large extent on the amount of accurate information available to a monitoring and evaluation processes. Thus, the success in the execution of a project depends on the kind of information available to those involve in project management.

Limited resources and budget allocations

Projects in a monitoring and evaluation processes often struggle with limited financial and human resources. Limited project monitoring and evaluation resources and budget allocations pose a challenge to project monitoring and evaluation. Comprehensive monitoring and evaluation systems require trained staff, access to technology, and sufficient funding.

No-compliance with planning and project monitoring and evaluation guidelines, poor quality of data, data gaps and inconsistencies are also problems affecting project monitoring and evaluation. Finding the resources to do it well is, unsurprisingly, one of the primary problems in effective monitoring and evaluation procedures. The lack of these resources can hinder data collection, analysis, and reporting.

Time constraints for monitoring and evaluation activities

Multiple projects simultaneously, leaving limited time for monitoring and evaluation activities. This time crunch can result in rushed data collection and superficial analysis,

reducing the overall effectiveness of monitoring and evaluation efforts.

Lack of stakeholder's involvement

Most monitoring and evaluation plans and strategies fail to identify the relevant stakeholders needed for monitoring and evaluation. This results in a misunderstanding/misconception of the uses and purposes of monitoring and evaluation information.

Challenges to effective stakeholder engagement include limited resources, competing priorities, lack of stakeholder engagement, and difficulties in gaining accurate data from stakeholders. Within the context of monitoring and evaluation activities, these challenges can be particularly pronounced as stakeholders must be regularly engaged throughout the entire process. Ensuring that stakeholders have a shared understanding of the monitoring and evaluation objectives, are provided with clear feedback loops to understand the impact of their engagement, and are equipped with the necessary tools for data collection are essential for successful stakeholder engagement in monitoring and evaluation activities. To this end, organizations can benefit from developing continual strategies of communication and cultural considerations to ensure that stakeholders remain engaged throughout the process.

Lack of Technology

Technology plays a large role in data collection and data analysis. Most organizations find themselves lacking the proper financial resources to invest in the technology needed for their monitoring or evaluation systems.

Modern data collection tools necessitate the use of advanced technology in order to produce quick, accurate, and comprehensive monitoring and evaluation reports. One obvious technological barrier is the chronic lack of computers, but there are also widespread technical problems that degrade data quality.

The lack of an effective digital project monitoring and evaluation database system and the development of non-measurable project monitoring and evaluation goals, which can therefore not be used to evaluate project performance and milestones or to communicate project outcomes, are obstacles to the successful implementation of project monitoring and evaluation.

Poor Planning

There is no doubt that it is always better to plan for things than to forget about them when conducting an evaluation. If you fail to plan for something, it usually results in poor results. A lack of planning can lead to a lack of time being available to conduct the evaluation, a lack of direction as to the outcomes you are hoping to achieve, or a lack of adequate resources (funding, personnel, space, etc.) for the evaluation.

In addition to poor planning, poor implementation fidelity issues can occur as well (namely how well a program or intervention is adhered to) which has a negative impact on the integrity and outcome of the evaluation, resulting in unintended consequence.

Monitoring and evaluation challenges result from people's limited understanding of their monitoring and evaluation related tasks due to a lack of understanding of what monitoring and evaluation entails. Misperceptions about monitoring and evaluation outcomes are a significant barrier to any monitoring and evaluation system's full operationalization.

2.1.11. Improving the performance of monitoring & evaluation System

Monitoring and evaluation is a powerful tool for understanding and improving the effectiveness and efficiency of an organization, activities and programs. It can help us learn from our mistakes, make better decisions, and increase efficiency, resulting in higher-quality services and outcomes for all. When used properly, monitoring and evaluation offers great potential to help organizations understand their strengths and weaknesses, identify trends over time, and measure progress. With the right systems in place, monitoring and evaluation can help us all achieve greater success.

When establishing the performance of the monitoring and evaluation system, the following improvements are listed by various publications (USAID, 2012, Eval Community survey, 2023, TolaData / 2019, Khatiala Matasyoh, 2013, F A O OTIENO, 2022, M&E studies, 2012);

A. Define monitoring & evaluation objectives and develop strategy

In the context of the Monitoring and Evaluation (M&E) process, objectives refer to the specific and measurable goals that an organization or project seeks to achieve through its activities. These objectives are typically established during the planning phase and are used to guide the monitoring and evaluation process, as well as to assess whether the project is achieving its intended outcomes.

Objectives can be short-term or long-term and can relate to a wide range of project activities, such as increasing access to project services, improving outcomes. The objectives should be specific, measurable, achievable, relevant, and time-bound (SMART) to enable effective monitoring and evaluation.

Objectives in the monitoring and evaluation process serve several purposes, including:

- Providing a clear direction for the project and defining what success looks like.
- Helping to measure progress towards achieving project goals.
- Identifying areas for improvement and making adjustments to project activities.
- Ensuring accountability and transparency by establishing clear benchmarks for project performance.
- Providing evidence-based data to inform decision-making and project planning.

Overall, objectives play a critical role in the monitoring and evaluation process by helping organizations and project to achieve their intended outcomes and to demonstrate their impact.

B. Define key performance Indicators in the process of monitoring & evaluation

Monitoring and Evaluation (M&E) is a crucial aspect of project management that involves systematically tracking and assessing project performance to identify areas for improvement and ensure that project goals and objectives are being achieved. Key Performance Indicators (KPIs) are an essential tool in the M&E process that allows project managers to measure progress towards achieving project goals and objectives.

KPIs are measurable indicators used to evaluate the success or failure of a project or program. They provide critical insights into how well a project is performing, whether it is meeting its objectives, and what actions can be taken to improve performance. KPIs can be qualitative or quantitative and are often based on project-specific goals and objectives.

Monitoring and Evaluation M&E involves tracking progress against predetermined objectives, identifying areas where improvements can be made, and making adjustments to the project or program based on the results of the evaluation. KPIs play a critical role in the M&E process by providing specific metrics that can be tracked and evaluated to determine project success.

The use of KPIs in M&E allows project managers to make informed decisions about resource allocation, identify potential risks or obstacles to project success, and make necessary adjustments to improve outcomes. Through the collection, analysis, and reporting of KPI

data, project managers can gain valuable insights into project performance and identify opportunities for growth and improvement.

The selection of KPIs should be based on the project's goals and objectives and the specific outcomes that the project aims to achieve. By using a combination of KPIs that cover various aspects of project performance, project managers can gain a comprehensive understanding of the project's strengths, weaknesses, and opportunities for improvement.

Overall, KPIs are a vital tool in the M&E process that helps project managers ensure that their projects are on track, identify areas for improvement, and make informed decisions to improve project outcomes.

C. Identify monitoring & evaluation Roles and Responsibilities

Monitoring and evaluation when carried out correctly and at the right time and place are two of the most important aspects of ensuring the success of many projects. Unfortunately, these two although known to many project developers tend to be given little priority and as a result they are done simply for the sake of fulfilling the requirements without the intention of using them as a mechanism of ensuring the success of the projects.

It should also be noted that each project may have unique requirements for this and that in such circumstances, project managers and developers should attempt to develop suitable monitoring and evaluation mechanisms. Monitoring and evaluation professionals play an important role in project management and often help build capacity in performance and impact measurement within their organizations.

It is recommended that further education be given to many project manager sin aspects of monitoring and evaluation so as to encourage them to use these tools often and correctly.

D. Establish data collection methods for monitoring & evaluation

Data collection is a process of gathering raw data in order to assess whether the planned targets in relation to all the indicators in the Project are succeeding.

Data collection methods are essential for organizations wishing to make informed decisions. Knowing how to collect data, what type of data to collect, and how to use the data to make decisions can be overwhelming.

During the planning process of the monitoring and evaluation study that you are going to conduct you will need to decide what data and information to collect to support you in

measuring and assessing the progress. Also develop way of how you will collect the data using these methods. Data collection methods will depend on the kind of indicators and the key questions that you have identified and other required information.

There are many tools and methods for the collection of data and they might differ from one type of data (Quantitative or qualitative) to another. Quantitative data collection methods include surveys, questionnaires, and secondary data analysis. Qualitative data collection methods include surveys, interviews, focus groups, and observation visits, Stakeholder Meetings.

Data collection is important for monitoring and evaluation because it allows us to measure the success of a project or program and identify areas for improvement. Data collection also allows us to track progress over time and compare results to goals and objectives.

By using a combination of quantitative and qualitative data collection methods, we can ensure that the data collected is accurate and reliable.

Monitoring and evaluation are essential components of successful project implementation. Data collection is an important part of the process, as it provides an evidence-based approach to monitoring and evaluation. This data can be used to measure progress, determine the impact of activities, identify issues that need to be addressed, and ultimately ensure the success of projects. Collecting data is one sure way to make sure your project achieves its goals.

Thus, when it comes to monitoring and evaluation, data collection methods are invaluable as they can provide a detailed idea of the current situation on any given project or program. Furthermore, data analysis can help identify potential risks or opportunities as well as highlighting areas that need improvement. As such, data collection is a pivotal step in successful monitoring and evaluation.

E. Adopting monitoring & evaluation tools and techniques

The Project Management Institute (PMI) identifies a set of tools and techniques used in monitoring and evaluation of projects. These tools and techniques selected for this study are a part of this set. They are: Earned Value Management, Variance Analysis, Performance Reviews and the Project Management Software.

Earned Value Management

Earned value management (EVM), is a project management technique for measuring project performance and progress in an objective manner. Because EVM has the ability to combine measurements of scope, schedule and cost, in a single integrated system, Earned Value Management is able to provide accurate forecasts of project performance problems, which is an important contribution for project management.

Variance Analysis

According to Spafford (2003), the difference between what you anticipated and what you really received is the fundamental definition of a variance. a variance as any schedule, technical; performance, or cost deviation from a specific plan. Variances must be tracked and reported. They should be mitigated through corrective actions and not eliminated through a baseline change unless there is a good reason. The cost variance compares deviations only from the budget and does not provide a measure of comparison between work scheduled and work accomplished. The scheduling variance provides a comparison between planned and actual performance but does not included costs.

Performance Reviews

There is need to regularly communicate status on assigned activities and work products to relevant stakeholders, identify and document significant issues and deviations from the plan, document change requests and problems identified in any of the work products and processes and finally document the results of the reviews, track change requests and problem reports to closure.

Project Management Software (For Scheduling)

Project management software is a term covering many types of software, including estimation and planning, scheduling, cost control and budget management, resource allocation, collaboration software, communication, quality management and documentation or administration systems, which are used to deal with the complexity of large projects.

F. Stakeholder engagement in the process of monitoring & evaluation of projects

Stakeholder engagement is a key component of successful monitoring and evaluation (M&E) activities. By engaging stakeholders in the planning, implementation, and analysis of monitoring and evaluation activities, organizations can more accurately assess the effectiveness of their programs, policies, and initiatives.

Stakeholder engagement in M&E activities can ensure that all necessary stakeholders understand the objectives and purpose of the evaluation process. This allows for a full and thorough assessment of the strategic impact of a project or activity, as well as an understanding of how stakeholders are affected. Through effective stakeholder engagement, stakeholders can provide direct input on the evaluation process by providing feedback on the design, implementation and findings of the M&E activities. Furthermore, stakeholders can help to determine what information should be collected and how it should be analyzed. Ultimately, involving stakeholders in M&E activities aids in creating validity, accountability and transparency in the process. This results in more robust evidence-based decisions that are tailored to meet the needs of all stakeholders.

It is an important tool to help identify any potential risks that could affect the success of a project or activity. With this knowledge, organizations can be better prepared to manage and address them, leading to more successful outcomes that are tailored to meet stakeholders' varying needs.

G. Make a plan for analysis of monitoring & evaluation reports

A monitoring and evaluation (M&E) plan is a document that helps to track and assess the results of the interventions throughout the life of a project. It is a living document that should be referred to and updated on a regular basis. While the specifics of each project's M&E plan will look different, they should all follow the same basic structure and include the same key elements.

A monitoring and evaluation plan will include some documents that may have been created during the project planning process, and some that will need to be created new. The monitoring and evaluation plan takes those documents and develops a further plan for their implementation.

It is important to develop a monitoring and evaluation plan before beginning any monitoring activities so that there is a clear plan for what questions about the project need to be answered. It will help project staff decide how they are going to collect data to track indicators, how monitoring data will be analyzed, and how the results of data collection will be disseminated both to the donor and internally among staff members for project improvement. Remember, monitoring and evaluation data alone is not useful until someone puts it to use! A monitoring and evaluation plan will help make sure data is being used

efficiently to make project as effective as possible and to be able to report on results at the end of the project.

H. Improving the staffs understanding of monitoring and evaluation functions

For employers, understanding the importance of monitoring and evaluation is a key to success. It helps them to identify areas for improvement and develop strategies to reach their goals. Monitoring and evaluation (M&E) is a critical process in any organization, and it is particularly important in the workplace. Whether you are working in the public or private sector, M&E can help you to achieve your goals and maximize your impact.

In the workplace, M&E can take many forms. It might involve tracking the success of a marketing campaign, measuring employee performance, or evaluating the impact of a new product or service. Whatever the context, M&E can help to ensure that organizations are accountable, effective, and innovative. By ensuring accountability, improving program effectiveness, promoting learning and innovation, enhancing communication and collaboration, and supporting resource mobilization, M&E can help organizations to achieve their goals and maximize their impact.

Building a strong Monitoring and Evaluation (M&E) culture in an organization requires intentional effort and commitment. It requires sustained effort and commitment from all levels of an organization. By implementing strategies and tools, organizations can create a culture of continuous learning and improvement, ensuring that their programs and projects are effective, efficient, and accountable.

Monitoring and evaluation can help identify areas of improvement, allowing employers to adjust their strategies accordingly. Writing a resume is a key to standing out amongst other candidates, as it provides employers with a comprehensive overview of an individual's skills and experiences. A strong resume includes tangible examples of the applicant's knowledge and abilities, from leadership experience to technical skills. Crafting an effective resume can help to show employers what you bring to the table and make you stand out from the rest.

In the capacity building of professionals, M&E practical training is important because it helps with the interaction and management of M&E systems. M&E preparation begins with an understanding of the M&E concept and ensures that the team recognizes the relations between the project theory of change and the framework of performance and the related indicators; training should therefore be practical focused to ensure the understanding

In conclusion, monitoring and evaluation is an invaluable strategy for employers. It helps them identify areas for improvement, develop effective strategies and measure the success of initiatives. With the right implementation methods and tools, employers can gain insights into their operations to ensure they are meeting their goals efficiently and effectively.

2.2 Empirical Review

There is a sizable body of works monitoring & evaluation literature based on international empirical studies. Monitoring & evaluation research on construction projects, however, has received less attention. A few studies in the field have compared the monitoring & evaluation systems used in various construction projects.

The function of project management abilities in monitoring and evaluating the success of infrastructure projects is explained by the notion of project management competency. Gladder (2010) noted that technical project managers and monitoring and evaluation specialists should be able to apply knowledge, skills, tools, and techniques effectively in order to deliver as expected, be able to achieve the project's goals, and optimize the integrated cost, schedule, and effort. This was in the study, The Effect of Project Monitoring and Evaluation on Road Constructed Project in Malaysia. P-value for each predictor was 0.000. The results of the study only address the knowledge element of competence, while a second study in Australia's National Competency Standards focuses on demonstrable performance capacity in project management and monitoring. The study also discovered that two of the most important standards only address the knowledge aspect of competence. According to the survey, some project managers lack the expertise needed to successfully monitor and assess road infrastructure projects, failing to fast-track necessary improvements.

The limitations and issues that prevent Monitoring and evaluation of development initiatives were identified by Ryman and Harries' (2008) study. Data from 37 projects was used to accomplish the targeted goals. According to the report, it is no longer possible to undervalue the importance of project monitoring and evaluation. The study's findings also identified the major obstacles and issues that made monitoring and assessment of development programs difficult. They include a lack of commitment to conducting monitoring and evaluation as well as a failure to implement, communicate, share, and take into account the findings of such actions. The survey also revealed that there was a lack of trained employees, a lack of technical resources, insufficient funding for monitoring and evaluation, and few possibilities

for training.

According to Harold (2013), project managers and contractors may more efficiently monitor and evaluate infrastructure projects with the use of this knowledge, which boosts project performance. The study also revealed that project managers of road infrastructure projects must be aware of how closely their initiatives adhere to the requirements of their clients. The study also showed that feedback from stakeholders and data gathered through monitoring were statistically insignificant but nevertheless significant to project performance.

In the Oromia region Adama city of Central Ethiopia, Lencha (2013) conducted studies on "Rural Water Supply Management and Sustainability. “The study sought to evaluate issues such as community involvement, water committee empowerment, management and governance of water supply schemes, functional status of water supply schemes, external support, and monitoring and evaluation system of water supply schemes. Qualitative and quantitative data were collected from 4 samples of water schemes and a total of 148 representative households, and the findings revealed that, the rate of community participation in water supply schemes was at a low level. The study lastly recommended on the provision of trainings and refresher training in order to scale up the capacity of water committee to manage the water schemes properly.

Ashenafi Abebe (2015) did a study on "Assessment of Construction Project Planning, Monitoring and Evaluation Practice" at Defense Construction Enterprise, which was specifically focused on the construction industry. This study investigates the planning, monitoring, and assessment procedures used in defense construction projects. The study uses a descriptive methodology, and one of the findings is that the enterprise project planning, monitoring, and evaluation team does not have the practice of formally evaluating each progress report and providing feedbacks. However, the reports include all the information required for evaluation, as well as issues that require management's special attention. The investigation also showed that DCE lacks an integrated, well-organized mechanism for project evaluation. The enterprise evaluates projects every quarter based on their own reports in management meetings without planned site observation report and procurement progress report.

2.4 Conceptual Framework

The following conceptual framework is created based on the literature studied above in order to determine the general course of the study. In this study, the dependent variable that the practice of project monitoring and evaluation is examined together with the independent variables that affects it. The factors include human resource capacity and financial allocation, less stakeholder engagement, loose monitoring and evaluation planning, loose data collection method, informational gap, a lack of technical skills, time constraint in monitoring and evaluation activities, and loose technological management. The purpose of the study is to determine how these variables affect project monitoring and evaluation practice and how they contribute to the success of institution projects.

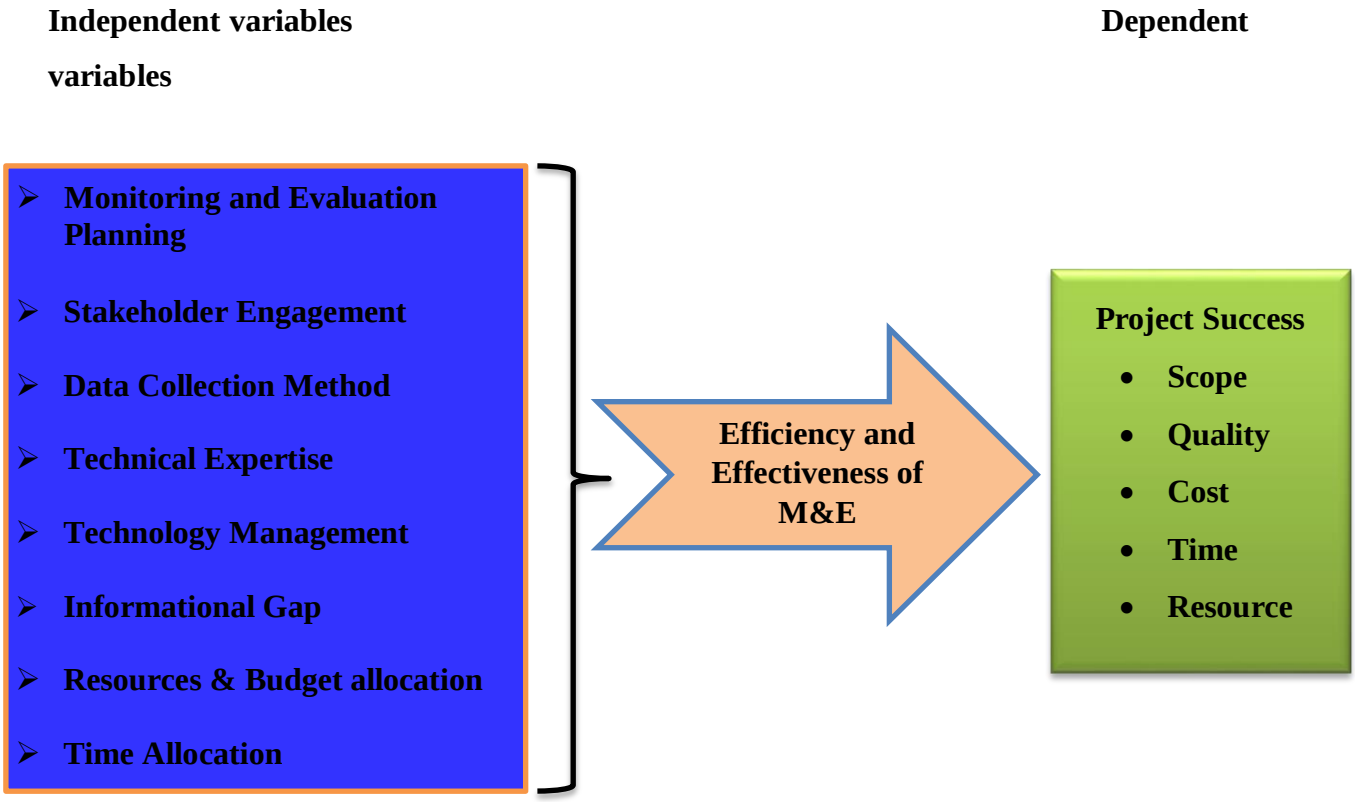


Figure 5 Conceptual Framework

Source: adapted from various literatures by the research

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides an overview of the numerous data gathering and analysis strategies used in this study. It describes the type of research strategy, the technique of data collection, and the methodology employed in this study. It focuses on the research design, location, target population, sampling technique, data source, collection tools and techniques and data analysis that were used in this study.

3.2 Research Design

Cooper and Schindler (2003) summarizes the essentials of research design as an activity and time based plan; always based on the research question; guides the selection of sources and types of information; a framework for specifying the relationship among the study variables and outlines the procedures for every research activity.

The study is conducted through a descriptive research design focusing on the current works monitoring & evaluation system in Ethiopian Roads Administration.

This thesis uses a quantitative and qualitative research strategy, with the qualitative approach being used to qualify the opinions of various scholarly publications in books and journals, and the quantitative approach being used to quantify data gathered through questionnaires.

3.3 Research Approach

The survey's focus on key participants working under the organization such us project manager, project Engineers, Team leaders and System administrator professionals at project management offices under Ethiopian Roads Administration, it were randomly distributed by self-administering and e-mailed questionnaires to target respondents of the six (6) construction projects management directorates, which are (west, east, south, north, central & express way) directorates under Ethiopian Roads Administration.

In terms of response, the study used a rigorous and predictable approach. On a five-point Likert-type scale; namely, (1-Strongly Disagree 2- Disagree 3-Neutral 4-Agree 5- Strongly Agree), the respondents were asked to rate the factors for effectiveness of the works monitoring & evaluation system, ERA management system (ERAMS), challenges in the works monitoring & evaluation System and how to improve the works monitoring &

evaluation system that were obtained from the literatures and ERAMS manuals as potentially influencing works monitoring & evaluation and the system.

3.4 Sources of Data Collection

Data type

For this study, the research uses both primary and secondary data collection tools; the primary data gathered from Ethiopian Roads Administration's employees, where a questionnaire was distributed in person and via e-mail and the secondary data comes from a variety of sources, including articles, reports, academic journals, and guidelines, and publications on works monitoring & evaluation system practice, as well as Ethiopian Roads Authority management system manuals (ERAMS, 2018), the respondents will be asked to indicate their level of agreement on a five point Likert scale as shown in the following ratings. A mean value will be calculated based on the survey responses.

Table 3-1 Rating Scales

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Scale	1	2	3	4	5

3.5 Target Population

The target/study population is the entire group a researcher is interested in. In this study, as indicated in the scope of the study section assesses the project monitoring and evaluation system in Ethiopian Road Administration.

The population for the study involves employees at ERA, project management offices from the six (6) construction projects management program directorates (West, East, North, South Central and Express way). There are 433 population assigned to run project works of different project management offices each of them are categorized as Project Managers, Team leaders, Lead Engineers, Senior Engineers, Engineers, Junior Engineers and Administrative.

3.6 Sampling Technique

To determine the sample size subjectively as per the information types gathered, the researcher employed purposive sampling technique. According to Kassiani Nikolopoulou (2023), Purposive sampling refers to a group of non-probability sampling techniques in which units are selected because they have characteristics that you need in your sample. In other words, units are selected "on purpose" in purposive sampling.

Also called judgmental sampling, this sampling method relies on the researcher's judgment when identifying and selecting the individuals, cases, or events that can provide the best information to achieve the study's objectives. Purposive sampling was preferred in this study, and participants were identified as Project Managers, Team leader, Lead Engineers, Senior Engineer, Engineers, Junior Engineers and Administrative support. This method is made use of when the members of the entire population do not present same performance, or when the sampling size is very small to represent the entire population efficiently.

3.7 Sampling Unit and Sample Size Determination

The sampling unit of this study was 145 projects which were administered by a total target population of 433 employees selected those are working on the directorate of M&E related activities, this sampling unit of 145 projects were selected based on the projects administered by the six construction projects management program directorates under ERA. During the study period, there were a total of forty one (41) road projects which were administered by west program directorates, twenty seven (27) road projects under East, forty eight (48) road projects under North, thirty (30) road projects under South, thirty six (36) road projects under Central and four (4) road projects under Express way.administered by the core professionals doing the actual monitoring and evaluation work activities in 6 (six) directorates and composed of Project manager, Team leaders, Lead Engineers, Senior Engineers, Engineers, Junior Engineers and Administrative.This 145 projects are administered by 145 core professional employees the same so the study uses as sample unit and described in the following table.

Table 3.2. Sample unit from each directorate

Directorate Execution M&E	**Target Population**	**Sampling unit**
Western program directorate	81	41
Eastern program directorate	69	27
Northern program directorate	95	48
Southern program directorate	72	30
Central program directorate	64	36
Express Way directorate	52	4
Total	**433**	**145**

In order to determine the appropriate sample size, this study uses stratified sampling technique.

According to Sena Akman (2023). Stratified random sampling is taking a sample from the strata using the simple random sampling method. This tool is used when the units in the mass have a heterogeneous structure. With stratified random sampling, conclusions about the population can be drawn. The layer can be inferred in different ways. We use this formula to find the sample size of each subgroup involving one or more strata: (sample size/population size) × strata size.

Since the numbers of people/project in each sample directorate will not the same, this needs to proportionate for each directorate and calculate using the following formula.

Proportionate Stratified Random Sampling Formula: n1 = (N1 / N) * n

Where n is the total number of sample

n1 - sample size in each directorate

N1 is the total number of population (project) in each directorate

N is the total number of population

So the samples sizes were selected with proportionately from each directorate are as follows:

Table 3.3. Sample size from each directorate

Directorate Execution M&E	Target Population	Sampling unit	Sample size in each directorate
Western program directorate	81	41	17.6 ~ 18
Eastern program directorate	69	27	11.6 ~ 12
Northern program directorate	95	48	20.6 ~ 21
Southern program directorate	72	30	13
Central program directorate	64	36	15
Express Way directorate	52	4	2
Total	**433**	**145**	**81**

Source: Ethiopian Roads Administration

The study was conducted taking a total sample of 81employees which are determined by using a table developed and finally to them questionnaire is distributed.

3.8 Method of Data Analysis

The methods of analysis used in this research were selected due to the type of data available for the analysis and the objectives of the research. The questions in the questionnaire were qualitative; hence the descriptive method of analysis is best suited for the analysis. Such method was applied for the presentation, interpretation and discussion parts on various dimensions of the appropriate to analyze, interpret, tabulate and present the result of the study. The data gathered through questionnaires was coded, entered into computer and analyzed and presented in the form of charts, diagrams, and tables by using (SPSS) Statics version 20 software. The results of the interview questions were integrated to the responses of management and employees through questionnaires and were analyzed accordingly. Finally, conclusions were made based on the results/findings of the study and recommendations were forwarded on the basis of the data analyzed.

3.9 Ethical Consideration

In any scientific project, ethics is critical. Any research must follow certain fundamental ethical guidelines. The researcher will handle the study's ethics by keeping the answers obtained fully confidential, particularly for administrative questions. Furthermore, the researcher obtained permission from the target respondents prior to performing the study.

The respondents' confidentiality and anonymity will also be protected and considerable effort was determined not to damage respondents in any way possible. As a result, all ethical considerations were taken to the fullest extent possible.

3.10 Reliability of the Research

The degree to which a test, measuring process, or questionnaire produces consistent results over time is referred to as reliability. In a nutshell, it refers to the consistency or consistency of scores across raters or across time (Sandelowski, 2000).

The components are regarded to be dependable if a technique or measurement instrument consistently assigns similar scores to objects or individuals with similar values. The reproducibility or consistency of test results shows the degree to which individual deviation scores should be expected to be comparably stable throughout testing circumstances on parallel or verifying components. In this study, reliability will be achieved by ensuring that no question is answered twice by the same respondent and that all respondents have completed the questionnaire.

15 questionnaires were distributed to test the reliability of the questionnaire and 14 questionnaires were returned. There are a variety of methods for calculating internal consistency, of which one of the most frequently used is Cronbach‘s alpha. Cronbach's alpha is a measure of internal consistency, that is, how closely related a set of items are as a group. It is considered to be a measure of scale reliability. Cronbach's alpha can be written as a function of the number of test items and the average intercorrelation among the items. It is a clear indication of reliability if the Cronbach alpha coefficient is 0.7 and above (Bryman & Bell, 2007). Since the alpha values of all 46 items were above 0.7 depicted in table 3.4 below the questionnaire was reliable.

Table 3.4. Items reliability

Variables	Cronbach's Alpha	No. of Items
ERA's Works Monitoring & Evaluation System	0.893	14
Ethiopian Roads Authority Management System (ERAMS)	0.840	12
Challenges in the Works Monitoring & Evaluation System	0.867	9
Improvement in the Works Monitoring & Evaluation System	0.937	11
The whole items	0.937	46

Source: SPSS reliability analysis

3.11 Validity

To ensure the validity of the research, the questionnaires were prepared ahead of time and pre-tested using Google form. Respondents were randomly selected from the target group via email. This will help to eliminate any ambiguity, allowing the questionnaire to be focused on collecting data pertinent to the study. Subsequently, the questionnaire was submitted to my advisor for thorough review and feedback, ensuring alignment with the study's objectives and encompassing all necessary information to address the research inquiries.

CHAPTER FOUR: DATA ANALYSIS AND DISCUSSION

4.1. Introduction

This section delves into the presentation, analysis, and interpretation of data derived from employee questionnaires. It encompasses discussions on statistical analysis methods like frequency tables and descriptive analyses conducted through SPSS version 20. Moreover, it will include details regarding the backgrounds of the respondents.

4.2. Response Rate

Out of the 81 questionnaires distributed among ERA employees, 80 were successfully returned, resulting in an impressive response rate of 98.7 percent.

Table 4.1. Response rates

Particular	**Total**	**Percentage**
Total questionnaires distributed	81	100
Questionnaires collected	80	98.7
Valid response	80	98.7

According to Mugenda, O.M., & Mugenda, A.G. (2003) a response rate of 50% is adequate for analysis and reporting a rate of 60% is generally good, while a response rate of above 70% is excellent. These criteria were considered when assessing the response rates in determining their acceptability. Such standards enhance the potential for generalization and suggest that the study's response rate was indeed satisfactory.

4.3 General Information about Respondents

Data collected to fulfill the outlined research objectives is gathered from respondents representing a range of demographic backgrounds. The initial section of the questionnaire is dedicated to obtaining demographic details from participants. This segment specifically seeks a concise set of information concerning respondents' personal and professional attributes. Consequently, data pertaining to demographic variables, such as gender, age, level of educational qualification, work experience, and managerial level, is succinctly summarized and presented in the table 4.2 below.

Table 4.2 General Information about Respondents

Variables	**Frequency**	**Percent**
Gender		
Female	14	17.5
Male	66	82.5
Total	80	100.0
Age		
18-30	35	43.8
31-40	40	50
41-50	5	6.2
>50	0	
Total	80	100.0
Educational qualification		
Diploma	0	
Degree	49	61.3
Masters	31	38.7
Doctorate	0	0
Above	0	0
Total	80	100.0
Work experience		
0- 5 years	23	28.7
5-10 years	39	48.8
10-15 years	18	22.5
15-20 years		
Above 20 years		
Total	80	100.0
Managerial level		
Employer	54	67.5
First- line	20	25
Mid-level	6	7.5
Top-level		
Total	80	100.0

Source: Survey data

According to Table 4.2, among the 80 respondents, 66 (82.5%) were male and 14 (17.5%) were female. This indicates a higher proportion of male respondents compared to female respondents. Additionally, it suggests that the organization has fewer female employees than male employees.

The age distribution of the respondents, as shown in Table 4.2, reveals that 35 individuals (43.8%) fall within the 18-30 age bracket, 40 respondents (50%) belong to the 31-40 age range, while 5 participants (6.2%) are in the 41-50 age groups. Notably, there were no respondents aged 50 and above. The data highlights a predominant presence of individuals aged 31-40, indicating a mature demographic with varied work experience. This demographic profile is perceived as advantageous for the effective implementation of project monitoring and evaluation processes to complete the project on budget, quality and schedule.

Upon examining the educational background of the respondents, it is evident that approximately 49 individuals (61.3%) hold a Bachelor's degree, while 31 respondents (38.7%) possess a Master's degree. Notably, there are no respondents with qualifications such as Diplomas or Doctorates among the sampled respondents. This data underscores the predominance of respondents with Bachelor's degrees, though with a slight margin compared to those with Master's degrees. This trend suggests that a significant portion of our respondents are well-equipped and competent in understanding the questionnaires and the facts of project Monitoring and Evaluation (M&E) implementation processes.

As depicted in Table 4.2, ERA staffs were surveyed regarding their work experience within the organization. The results indicate that 23 individuals (28.7%) have accumulated 0-5 years of work experience, while 48.8% have 5-10 years of experience. Additionally, 22.5% of respondents possess 10-15 years of work experience within the organization, with none reporting more than 15 years. These findings suggest that a significant proportion of staffs assigned to the project have more than five years of experience, or it can be inferred that an adequate number of senior staff members have been allocated to the project.

The survey findings reveal that the majority of respondents (67.5%) hold positions in employer managerial roles, encompassing junior engineers, engineers, and senior engineers. First-line positions, such as lead engineers and team leaders, account for 25% of the respondents, while mid-level managerial positions, represented by project managers, make up 7.5%. Interestingly, there were no participants from top-level managerial positions. From

this, the researcher determines that the majority of respondents held positions in employer managerial roles.

4.4. Effectiveness of Works monitoring & evaluation System

4.4.1 Works Monitoring and Evaluation of Organizational System Overview

The researcher developed 14 statements to assess the effectiveness of the works monitoring and evaluation system implemented by the Ethiopian Road Administration (ERA). These statements aimed to gauge the development of measurement indicators. Respondents were asked to express their level of agreement or disagreement with each statement using a 5-point Likert scale. A rating of 1 indicated strong disagreement, 2 meant disagreements, 3 denoted neutral/not being sure of the statement, 4 indicated agreement, and 5 represented strong agreement with the statement presented. The result was presented in table 4.3 using the Likert scale of 1-5; where SD = Strongly Disagree, D = Disagree, N = Neutral/ not sure, A = Agree, SA = Strongly Agree.

Table 4. 3. Works Monitoring and Evaluation of Organizational System

Variable		S.D	D	N	A	S.A	Total	mean	Standard deviation
Central project planning, monitoring & Evaluation team.	Freq.			8	47	25	80	4.21	.610
	%			10	58.8	31.2	100		
Plans serve as the basis and input for monitoring and evaluating the project	Freq.			17	51	12	80	3.94	.603
	%			21.3	63.7	15	100		
Findings from monitoring and evaluation are well-documented and archived	Freq.		39	12	23	6	80	2.95	1.042
	%		48.8	15	28.8	7.5	100		
In the event that a decision or action needs to be taken, ERA use or refer to M&E findings	Freq.		37	10	29	4	80	3.00	1.019
	%		46.3	12.5	36.3	5	100		
People who participate in project M&E have knowledge, experience, or training in this area.	Freq.		43	10	22	5	80	2.86	1.028
	%		53.8	12.5	27.5	6.3	100		
The project's progress report generated by ERA contains enough data to monitor and evaluate the project activity	Freq.		39	7	25	9	80	3.05	1.124
	%		48.8	8.8	31.3	11.3	100		
Projects are evaluated by Projects own report, On site meetings and site observation report.	Freq.		2	9	55	14	80	4.01	.626
	%		2.5	11.3	68.8	17.5	100		

Project activities' compliance with policies, procedures, and quality criteria is assessed through quality audits	Freq.		4	10	55	11	80	3.91	.679
	%		5	12.5	68.8	13.8	100		
ERA's projects following up/constructing as per the specification, manuals and guidelines	Freq.		1	7	57	15	80	4.08	.569
	%		1.3	8.8	71.3	18.8	100		
At all levels, stakeholders are sufficiently involved in monitor and evaluate activities	Freq.		53	12	15		80	2.53	.795
	%		66.3	15	18.8		100		
Environmental, social, and occupational health and safety impact assessments are undertaken for projects under ERA	Freq.		3	15	51	11	80	3.88	.682
	%		3.8	18.8	63.8	13.8	100		
Reports on the status of ERA's projects are prepared and evaluated on a regular basis for project success.	Freq.		1	12	56	11	80	3.96	.583
	%		1.3	15	70	13.8	100		
ERA has standard of project's M&E report format	Freq.		1	9	52	18	80	4.09	.620
	%		1.3	11.3	65	22.5	100		
ERA oversee project finances to make sure that funds are used properly, according to plan	Freq.		41	12	22	5	80	2.89	1.019
	%		51.3	15	27.5	6.3	100		

Source: Survey data

Based on the findings presented in Table 4.3, a considerable portion of the respondents, specifically 72 individuals (90%), agreed the existence of a central project planning, monitoring, and evaluation team within the organization. This team is tasked with overseeing and evaluating project activities. Conversely, a smaller proportion, comprising 8 respondents (10%), expressed uncertainty/not sure about this aspect (mean = 4.21, standard deviation = 0.610).

Regarding the insights gained from monitoring, 29 respondents (36.3%) expressed confidence that the findings from monitoring and evaluation processes are adequately documented and archived. . Conversely, 39 respondents (48.8%) disagreed with this statement while 12 respondents (15%) indicated uncertainty or were unsure about the matter. The mean score for certainty was calculated at 2.95, with a standard deviation of 1.04.

In terms of insights collected from monitoring, 33 respondents (41.3%) affirmed their confidence that if a decision or action needs to be taken, ERA will utilize or refer to M&E findings. Conversely, 37 respondents (46.3%) disagreed with this statement, while 10 respondents (12.5%) indicated uncertainty or were unsure about the matter. The mean score for certainty was computed at 3.0, with a standard deviation of 1.019.

Respondents were surveyed to gauge their agreement level concerning whether individuals involved in project monitoring and evaluation possess the requisite knowledge, experience, or training in this domain. Results indicated that 33.8% of respondents expressed agreement, while 53.8% disagreed on this notion.

Participants in the survey were asked how much they agreed that the project's progress report, which was produced by ERA, had sufficient information to track and assess project activity. Findings revealed that 42.6% of respondents agreed with the statement, while 48.8% disagreed on the issue.

How much respondents agreed with the projects are evaluated by projects own report, on site meetings and site observation report was one of the questions posed to survey participants. The findings indicated that 86.3% of respondents agreed with the statement, while 11.3% had no opinion. This indicates that the projects in the organization are evaluated by the report, on site meetings and site observation.

The majority (about 83.8%) of the respondents agreed that reports on the status of ERA's projects are prepared and evaluated on a regular basis for project success and about 87.5% of the respondents also agreed that ERA has standard of project's M&E report format. On the other hand, roughly 11.3% of respondents had no opinion.

The ERA is responsible for supervising project finances to ensure that funds are utilized appropriately and in accordance with the plan. Respondents were questioned regarding their perception of this oversight. Results revealed that 27 individuals (33.8%) agreed that ERA effectively oversees project finances for proper fund usage, while 41 respondents (51.3%) expressed disagreement on the matter.

During project activities, adherence to policies, procedures, and quality standards is evaluated through quality audits. A significant majority, approximately 82.6% of respondents, acknowledged that project activities are indeed assessed through quality audits. Additionally, about 90.1% of respondents affirmed that ERA's projects adhere to specifications, manuals, and guidelines. Conversely, a small portion, roughly 12.5% and 8.8% of respondents respectively, did not express an opinion on these matters.

From the insights gathered through monitoring, it was found that 15 respondents (18.8%) expressed confidence in the adequate involvement of stakeholders across all levels in monitoring and evaluation activities. On the contrary, 53 respondents (66.3%) disagreed with

this assertion, whereas 12 respondents (15%) either expressed uncertainty or were unsure about the extent of stakeholder involvement.

In the same vein, 62 (77.6 %) of the respondents agreed that Environmental, social, and occupational health and safety impact assessments are undertaken for projects under ERA while 3 (3.8 %) of them disagreed on the statement. Additionally, 15 participants (18.8%) were not sure (mean = 3.88, standard deviation =0.682).

4.4.2 The effectiveness of Ethiopian Roads Authority Management System (ERAMS)

The Ethiopian Road Administration (ERA) introduced the Ethiopian Roads Authority Management System (ERAMS), aiming for effective management of monitoring and evaluation of projects. To assess its effectiveness, researchers developed 12 statements. Respondents were requested to indicate their degree of agreement or disagreement with each statement, utilizing a 5-point Likert scale.

Table 4. 4. Ethiopian Roads Authority Management System (ERAMS)

Variable		S.D	D	N	A	S.A	Total	mean	Standard deviation
ERAMS helped the organization for effectiveness of the performance of the projects follow up	Freq.	1	1	18	49	11	80	3.85	.713
	%	1.3	1.3	22.5	61.3	13.8	100		
ERAMS helpful for Data Management	Freq.			8	56	16	80	4.10	.542
	%			10	70	20	100		
ERAMS Consistent and accurate in reporting	Freq.	1	35	14	25	5	80	2.98	1.03
	%	1.3	43.8	17.5	31.3	6.3	100		
ERAMS Improve Communication	Freq.		2	16	52	10	80	3.88	.644
	%		2.5	20	65	12.5	100		
ERAMS most secure and scalable platform	Freq.		46	3	27	4	80	2.86	1.05
	%		57.5	3.8	33.8	5	100		
ERAMS can be easily integrated to other ERA system	Freq.		7	17	48	8	80	3.71	.766
	%		8.8	21.3	60	10	100		
ERA should improve the way works monitoring system (WMS)	Freq.		1	8	52	19	80	4.11	.616
	%		1.3	10	65	23.7	100		
(WMS) allows Monitoring of project's physical and financial progress on a regular basis	Freq.		2	10	53	15	80	4.01	.646
	%		2.5	12.5	66.3	18.8	100		

(WMS) allows analysis of common features leading to increase costs and delayed delivery of projects	Freq.		3	10	55	12	80	3.89	.654
	%		3.8	12.5	68.8	15	100		
The data entry to the System is quality	Freq.	1	46	10	20	3	80	2.73	.981
	%	1.3	57.5	12.5	25	3.8	100		
Unincorporated monitoring standards such as health, safety, and quality	Freq.	2	11	15	44	8	80	3.56	.939
	%	2.5	13.8	18.8	55	10	100		
The Performance Quality & System Management Directorate under ERA offers ERAMS training possibilities that are fulfilling	Freq.		37	11	28	4	80	2.99	1.013
	%		46.3	13.8	35	5	100		

Source: Survey data

According to the data presented in Table 4.4, a significant proportion of the respondents, specifically 60 individuals (75.1%), agreed that ERAMS contributed to the effectiveness of project follow-up performance. Additionally, 72 individuals (90%) acknowledged the utility of ERAMS in data management for the organization. Conversely, 18 respondents (22.5%) expressed uncertainty or were unsure about the effectiveness of project follow-up performance, and a smaller percentage (10%) indicated uncertainty regarding ERAMS' efficacy in data management. The mean scores were 3.85 with a standard deviation of 0.713 for project follow-up performance, and 4.1 with a standard deviation of 0.542 for data management, respectively.

Findings from the monitoring efforts reveal that a notable percentage of respondents, specifically 30 individuals (37.6%), agreed the consistency and accuracy of ERAMS in reporting. Moreover, a significant majority of 62 individuals (77.5%) acknowledged ERAMS for enhancing communication within the organization. Conversely, 36 respondents (45%) expressed disagreement regarding the consistency and accuracy of ERAMS in reporting, while a portion of 20% indicated similar uncertainty regarding the improvement in communication facilitated by ERAMS. The mean scores were 2.98 with a standard deviation of 1.03 for consistency and accuracy in reporting, and 3.88 with a standard deviation of 0.542 for improvement in communication, respectively.

Based on the findings gathered, a majority of respondents (38.8%, 31 individuals) expressed confidence in ERAMS as the most secure and scalable platform. Moreover, a significant portion (70%) acknowledged the ease of integrating ERAMS with other ERA systems. Conversely, a minority (57.5%, 46 respondents) disagreed with ERAMS being the most

secure and scalable platform, while a smaller portion (3.8%, 3 respondents) expressed uncertainty or were undecided on the matter.

Regarding the insights gleaned from the findings, it was found that 68 respondents (85.1%) confirmed their confidence in the ability of the (WMS) to facilitate the monitoring of a project's physical and financial progress regularly. Moreover, a substantial proportion (83.8%) agreed that the (WMS) enables the analysis of typical attributes that often result in escalated costs and project delivery delays. In contrast, 10 respondents (12.5%) expressed uncertainty or were undecided regarding whether the (WMS) facilitates the monitoring of a project's physical and financial progress, as well as the analysis of common factors contributing to increased costs and delayed project completion.

Based on the findings gathered, a majority of respondents (40%, 32 individuals) expressed confidence in The Performance Quality & System Management Directorate under ERA offers ERAMS training possibilities that are fulfilling. Conversely, a majority (46.3%, 37 respondents) disagreed on the matter.

4.5. Challenges in the Works Monitoring & Evaluation System

The respondents were surveyed to identify the primary challenges encountered in the works monitoring and evaluation system for road projects under ERA. Nine statements were utilized to evaluate these challenges; each assessed using a 5-point Likert scale. A score of 1 indicated strong disagreement with the statement, 2 denoted disagreement, 3 signified neutrality or uncertainty regarding the statement, 4 represented an agreement, and 5 indicated strong agreement. The result was presented in the table 4.5 using the Likert scale of 1-5; where SD = Strongly Disagree, D = Disagree, N = Neutral/ not sure, A = Agree, SA = Strongly Agree.

Table 4. 5. Challenges in the Works Monitoring & Evaluation System

Variable		S.D	D	N	A	S.A	Total	mean	Standard deviation
The M&E assessment approach is not advanced in information technology.	Freq.		12	14	48	6	80	3.60	.836
	%		15	17.5	60	7.5	100		
Lack of sufficient financial resources	Freq.	1	10	15	44	10	80	3.65	.901
	%	1.3	12.5	18.8	55	12.5	100		
Inaccuracy/improper data gathering	Freq.		5	10	55	10	80	3.88	.700
	%		6.3	12.5	68.7	12.5	100		

Biased Data feeding in the ERAMS system	Freq.		5	16	50	9	80	3.79	.724
	%		6.3	20	62.5	11.3	100		
Delay in information (data) delivery from several units	Freq.		2	10	53	15	80	4.01	.646
	%		2.5	12.5	66.3	18.7	100		
Poor planning, monitoring & evaluation of projects activities.	Freq.		7	13	49	11	80	3.80	.786
	%		8.8	16.3	61.3	13.8	100		
Less engagement of stakeholders in the process of M&E of projects activities.	Freq.		6	10	51	13	80	3.89	.763
	%		7.5	12.5	63.8	16.3	100		
Lack of expertise in this area	Freq.		12	10	45	13	80	3.74	.910
	%		15	12.5	56.3	16.3	100		
Failure to choose the proper key performance indicators	Freq.		8	17	48	7	80	3.68	.776
	%		10	21.3	60	8.7	100		

Source: Survey data

According to the findings presented in Table 4.5, it is evident that there are several significant challenges hindering the effective implementation of monitoring and evaluation (M&E) in ERA. The foremost issue identified is the delay in information delivery from various units, scoring a mean of 4.01, alongside low stakeholder engagement in M&E processes, shortcomings in data gathering and poor planning, monitoring, and evaluation in project activity, scoring means of 3.89, 3.88, and 3.8 respectively. These challenges are consistently reported as the most prominent hurdles in ERA's monitoring and evaluation (M&E) efforts. Following closely are additional obstacles, including biased data input into the ERAMS system, insufficient expertise in M&E, and inadequacy in selecting appropriate key performance indicators, with mean scores of 3.79, 3.74, and 3.68 respectively. In contrast, challenges such as insufficient financial resources and underdeveloped M&E assessment approaches using information technology are regarded as relatively less significant in impeding the effective implementation of monitoring and evaluation practices in ERA.

4.6. Improvement in the Works Monitoring & Evaluation System in ERA

The researcher formulated 11 statements to evaluate the improvement in the monitoring and evaluation system employed by the Ethiopian Road Administration (ERA). These statements were designed to assess the progress of measurement indicators. Respondents were requested to indicate their degree of agreement or disagreement with each statement using a 5-point Likert scale. A rating of 1 signified strong disagreement, 2 indicated disagreement, 3 denoted

neutrality or uncertainty regarding the statement, 4 represented agreement, and 5 conveyed strong agreement with the statement provided. The result was presented in table 4.6 using the Likert scale of 1-5; where SD = Strongly Disagree, D = Disagree, N = Neutral/ not sure, A = Agree, SA = Strongly Agree.

Table 4. 6. Improvement in the Works Monitoring & Evaluation System

Variable		S.D	D	N	A	S.A	Total	mean	Standard deviation
ERA define M&E objectives and develop strategy for achievement of these objectives	Freq.		28	15	31	6	80	3.19	1.007
	%		35	18.8	38.8	7.5	100		
ERA improves staff understanding of M&E functions through interaction, training, and implementation on the job.	Freq.		26	2	48	4	80	3.38	0.99
	%		32.5	2.5	60	5	100		
ERA make a plan for analysis and templates for M&E reports.	Freq.		27	20	30	3	80	3.11	.928
	%		33.8	25	37.5	3.8	100		
ERA added a new features on the existing ERAMS system	Freq.		39	8	29	4	80	2.98	1.031
	%		48.8	10	36.3	5	100		
ERA standardized the M&E process	Freq.		5	9	61	5	80	3.63	.700
	%		6.3	11.3	76.3	6.3	100		
ERA involve stakeholder in the process of M&E of projects	Freq.	1	43	10	22	4	80	2.82	1.02
	%	1.3	58.3	12.5	27.5	5	100		
ERA define key performance indicators in the process of M&E of project activities.	Freq.		33	8	34	5	80	3.14	1.040
	%		41.3	10	42.5	6.3	100		
ERA has established the timeframe and data collection methods for M&E of project	Freq.		34	9	32	5	80	3.10	1.03
	%		42.5	11.3	40	6.3	100		
ERA identify M&E roles and responsibilities	Freq.		36	8	28	8	80	3.10	1.09
	%		45	10	35	10	100		
ERA frequently identifies strengths and weaknesses, focusing on informational gaps in particular.	Freq.		38	11	26	5	80	2.98	1.031
	%		47.5	13.8	32.5	6.3	100		
ERA adopted modern M&E tools and techniques to improve the availability, quality and utilization of information	Freq.	1	44	9	24	2	80	2.78	.981
	%	1.3	55	11.3	30	2.5	100		

Source: Survey data

The improvements evident in ERA's monitoring and evaluation system, as depicted in Table 4.6, are notable. ERA has made significant strides, as reflected in the mean scores across various aspects. The organization's standardized M&E process, scoring a mean of 3.63, stands out as the initial achievement. Moreover, ERA has enhanced staff comprehension of M&E functions through interactive training and on-the-job implementation. Additionally, ERA has effectively defined M&E objectives, developed strategies for their attainment, and identified key performance indicators, ERA make a plan for analysis and templates for M&E reports, defined roles and responsibilities, and established timeframes and data collection methods for project evaluation, scoring means of 3.38, 3.19, 3.14, 3.11, 3.10 and 3.10 respectively. These consistent improvements underscore ERA's commitment to robust monitoring and evaluation practices.

Contrary to expectations, a significant portion of respondents disagreed regarding improvements in the implementation of, ERA actively engages stakeholders in project M&E processes, modern M&E tools and techniques have been embraced by ERA to enhance the accessibility, caliber, and application of information, ERA has introduced new features to the pre-existing ERAMS system. Additionally, while also consistently identifying strengths and weaknesses, with a particular emphasis on informational gaps. The percentage breakdown for these statements stands at 58.3%, 55%, 48.8% and 47.5%, respectively.

CHAPTER FIVE: SUMMARY CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

In this chapter, the main summary of findings, conclusion, and recommendations derived from the study's survey results presented. First, the major findings from the frequency table and descriptive analysis are summarized shortly. Then conclusions are followed. Subsequently, recommendations concerning the enhancement of the work monitoring and evaluation system are provided.

5.2. Summary

The primary aim of this study was to assess the works monitoring and evaluation system within ERA, identifying the challenges faced in monitoring and evaluating construction projects under ERA, and proposing improvements to the performance of works monitoring & evaluation System. To achieve these goals, the researcher employed a descriptive survey design and analyzed respondents' feedback using SPSS version 20. The research was carried out on a sample of 81 employees from the Ethiopian road administration. These respondents were selected from a total of 186 sample units using proportionate stratified random sampling across 6 directorates. Questionnaires were then distributed to the selected individuals.

From the distributed questionnaire, 98.7% of the surveys were returned. Subsequently, the gathered data underwent thorough editing, sorting, cleaning, and coding in preparation for analysis. The results were then conveyed through the utilization of percentages, frequencies, and tables in the presentation.

A Cronbach's alpha test was conducted to measure the internal consistency and reliability of the data collection instruments (questionnaires), yielding a reliability coefficient of 0.937. This indicates high reliability, as all alpha values exceeded the recommended threshold of 0.7.

Regarding the ERA's organizational works monitoring & evaluation system overview, the findings show that majority of the respondents agreed that there were a central project planning, monitoring, and evaluation team within the organization, the projects are evaluated by projects own report, on site meetings and site observation, project activities are indeed assessed through quality audits, ERA has standard of project’s M&E report format, reports on the status of ERA's projects are prepared and evaluated on a regular basis for project success,

ERA's projects adhere to specifications, manuals, and guidelines, Environmental, social, and occupational health and safety impact assessments are undertaken for projects under ERA, findings as areas ERA doing better. However, a significant portion of respondents disagreed regarding the findings from monitoring and evaluation processes are adequately documented and archived, if a decision or action needs to be taken, ERA will utilize or refer to M&E findings, individuals involved in project monitoring and evaluation possess the requisite knowledge, experience, or training in this domain, the project's progress report, which was produced by ERA, had sufficient information to track and assess project activity, supervising project finances to ensure that funds are utilized appropriately and in accordance with the plan and in the adequate involvement of stakeholders across all levels in monitoring and evaluation activities.

Regarding the effectiveness of Ethiopian Roads Authority Management System (ERAMS), the findings show that majority of the respondents agreed that ERAMS contributed to the effectiveness of project follow-up performance, ERAMS helpful for Data Management, ERAMS Improve Communication, ERA should improve the way works monitoring system (WMS), (WMS) allows Monitoring of project's physical and financial progress on a regular basis, (WMS) allows analysis of common features leading to increase costs and delayed delivery of projects, ERAMS can be easily integrated to other ERA system and Unincorporated monitoring standards such as health, safety, and quality in the system. On the contrary, a significant portion of respondents disagreed regarding, ERAMS is consistent and accurate in reporting, ERAMS is most secure and scalable platform, the data entry to the System is quality, the Performance Quality & System Management Directorate under ERA offers ERAMS training possibilities that are fulfilling.

The primary challenges encountered during monitoring and evaluation (M&E) in ERA encompasses several key issues. These include delay in information (data) delivery from several units, Less engagement of stakeholders in the process of M&E of projects activities, inaccuracy/improper data gathering, biased data feeding in the ERAMS system, poor planning, monitoring & evaluation of projects activities, lack of expertise in this area, lack of sufficient financial resources, failure to choose the proper key performance indicators and the M&E assessment approach is not advanced in information technology.

Regarding the improvements marked in ERA's monitoring and evaluation system, the findings show that majority of the respondents agreed that the organization's standardized

M&E process, ERA improves staff understanding of M&E functions through interaction, training, and implementation on the job, ERA has effectively defined M&E objectives, identified key performance indicators, ERA make a plan for analysis and templates for M&E reports, defined roles and responsibilities and established timeframes and data collection methods for project evaluation. However, a significant portion of respondents disagreed regarding ERA actively engages stakeholders in project M&E processes, ERA adopted modern M&E tools and techniques to improve the availability, quality and utilization of information, ERA added a new features on the existing ERAMS system and ERA frequently identifies strengths and weaknesses, focusing on informational gaps in particular.

5.3. Conclusion

Based on the result obtained from the study and based on its specific objectives the following conclusions were drawn:

The findings from the overview of the Ethiopian Roads Authority's (ERA) organizational works monitoring and evaluation system reveal several strengths as well as areas for improvement. It is evident that ERA has established a robust framework for project planning, monitoring, and evaluation, with centralized teams and systematic approaches in place. Projects are evaluated through various methods, including on-site meetings, quality audits, and impact assessments, demonstrating a commitment to assessing project success and adherence to standards. However, challenges such as inadequate documentation, underutilization of monitoring and evaluation findings for decision-making, and gaps in expertise highlight areas needing attention.

Similarly, the effectiveness of the Ethiopian Roads Authority Management System (ERAMS) is underscored by its contributions to project follow-up performance, data management, and communication improvement. Yet, concerns about reporting accuracy, system security, data quality, and training opportunities warrant addressing for further enhancement.

Key challenges encountered during monitoring and evaluation processes include delays in data delivery, stakeholder engagement issues, data accuracy issues, and resource constraints. These challenges emphasize the need for improved coordination, capacity building, and resource allocation within ERA's monitoring and evaluation endeavors.

The improvements marked in ERA's monitoring and evaluation system showcase progress in standardization, staff training, objective setting, and report templates. However, there's room

for improvement in stakeholder engagement, adoption of modern tools, system enhancements, and gap identification for more comprehensive evaluation practices.

In conclusion, while ERA has established a foundation for effective monitoring and evaluation system, addressing identified challenges and implementing suggested improvements will be essential for enhancing the overall efficiency and impact of its monitoring and evaluation efforts in managing road infrastructure projects effectively.

5.4. Recommendation

Based on the finding of the study the researcher recommends as follows:

- Enhance Documentation and Archiving: ERA should prioritize improving documentation and archival practices related to monitoring and evaluation processes. This includes ensuring comprehensive records are kept and easily accessible for future reference.

- Utilize Findings for Decision-Making: It's crucial for ERA to actively utilize findings from monitoring and evaluation processes for decision-making purposes. This entails establishing mechanisms to integrate M&E insights into project management strategies.

- Invest in Capacity Building: Addressing gaps in knowledge, experience, and training among individuals involved in monitoring and evaluation is vital. ERA should invest in capacity-building initiatives to empower staff with the necessary skills and expertise.

- Improve Reporting Standards: Enhancing the sufficiency of information in project progress reports is essential. ERA should strive for transparency and clarity in reporting standards to facilitate better understanding and decision-making.

- Enhance Financial Oversight: Strengthening financial supervision processes will help ensure resources are allocated efficiently and transparently. ERA should implement robust mechanisms for financial oversight to mitigate risks and ensure accountability.

- Foster Stakeholder Engagement: Enhancing stakeholder involvement throughout project cycles is critical. ERA should adopt strategies to foster collaboration and inclusivity; ensuring stakeholders are engaged in M&E processes.

- Address ERAMS Challenges: Addressing concerns related to the effectiveness and usability of ERAMS is essential. ERA should prioritize improvements in the works

monitoring system, data accuracy, security, scalability, and training opportunities offered by ERAMS.

- Leverage Advanced Technologies: Incorporating modern monitoring and evaluation tools and techniques can enhance the effectiveness and efficiency of M&E practices. ERA should explore the adoption of advanced technologies to improve data availability, quality, and utilization.

- Regularly Assess and Improve: Establishing a culture of continuous improvement is crucial. ERA should regularly assess the strengths and weaknesses of its M&E system and implement necessary adjustments to optimize performance over time.

By implementing these recommendations, ERA can strengthen its monitoring and evaluation practices, enhance organizational effectiveness, ensure accountability, and ultimately improve project outcomes and impact.

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Appendix

Sample Research Questions

Addis College

Department of Construction Technology and Management

Dear Respondents,

I am Solomon Tadesse conducting a research thesis for my MSc titled "***Assessment on Project Monitoring & Evaluation System in Ethiopian Roads Administration***" at Addis College under the department of Construction Technology and Management. This study is anticipated to lead to a better understanding of the challenges encountered in the process of monitoring & evaluation system of projects under ERA and the development of improved Works Monitoring & Evaluation System.

As a result, a survey questionnaire has been developed for your crucial and reliable response, which is essential for the research to be effective. Meanwhile, your response will be kept strictly confidential, and the information you provide will be utilized exclusively for academic study.

Thank you for your time and cooperation, and please do not include your name or any other personal information in the questionnaire. Please contact me at the following address if you have any questions.

Best regards,
Solomon Tadesse
Post Graduate Student, Construction Technology and Management (Addis College)
Tel: +251-913-17-19-64
E-mail: tadessesolomon99@gmail.com

This questionnaire consists of;

Part I: General Information

Part II: Questionnaires

Instruction: Please give answers on the space provided & put tick (√) inside the box corresponding to your response.

Part I: <u>General information</u> (Basic information of the respondent)

1. Gender

   ☐ Male ☐ Female

2. Age

   ☐ 18-30 ☐ 31-40 ☐ 41-50 ☐ > 50

3. What is your level of education?

   ☐ Diploma ☐ Degree ☐ Masters ☐ Doctorate ☐ Above

4. Year of work experiences?

   ☐ 0-5 ☐ 5-10 ☐ 10-15 ☐ 15-20 ☐ Above 20

5. What is your Management level?

   ☐ Employer ☐ First-line ☐ Mid-level ☐ Top-level

Instruction: Please give answers on the space provided & put tick (√) inside the box corresponding to your response. *There is no correct or incorrect response. Please select the option that best expresses your point of view.*

Part II: <u>Questionnaires</u>

This section surveys how effective the works monitoring & evaluation system is, as well as

the challenges encountered in the works monitoring & evaluation system and how to improve the works monitoring & evaluation system to achieve better outcomes in Ethiopian Roads Administration.

Please use the following scale to indicate how much you agree or disagree with the following statements.

1-Strongly Disagree 2- Disagree 3-Neutral 4-Agree 5- Strongly Agree

A. Questions regarding the effectiveness of Project Monitoring & evaluation System in ERA

I. No.	Questions concerning the effectiveness of ERA's Project Monitoring & Evaluation System	1	2	3	4	5
1	ERA has a central project planning, monitoring & Evaluation team.					
2	Plans serve as the basis and input for monitoring and evaluating the project activities of ERA.					
3	Findings from monitoring and evaluation are well-documented and archived in ERA.					
4	In the event that a decision or action needs to be taken, ERA use or refer to monitoring and evaluation findings					
5	People who participate in project monitoring and evaluation have knowledge, experience, or training in this area.					
6	The project's progress report generated by ERA contains enough data to monitor and evaluate the project activity.					
7	Projects are evaluated by Projects own report, On site meetings and site observation report.					
8	Reports on the status of ERA's projects are prepared and evaluated on a regular basis for project success.					

I. No.	Questions concerning the effectiveness of ERA's Project Monitoring & Evaluation System	1	2	3	4	5
9	ERA has standard of project's monitoring & evaluation report format					
10	ERA oversee project finances to make sure that funds are used properly, according to plan, and with the required authority.					
11	Project activities' compliance with policies, procedures, and quality criteria is assessed through quality audits.					
12	ERA's projects following up/constructing as per the specification, manuals and guidelines					
13	At all levels, stakeholders are sufficiently involved in monitor and evaluate activities.					
14	Environmental, social, and occupational health and safety impact assessments are undertaken for projects under ERA					

B. Questions regarding the effectiveness of Ethiopian Roads Authority Management System (ERAMS)

I. No.	Questions regarding the effectiveness of ERAMS	1	2	3	4	5
1.	ERAMS helped the organization for effectiveness of the performance of the projects follow up					
2.	ERAMS is helpful for Data Management					
3.	ERAMS is Consistent and accurate in reporting					
4.	ERAMS Improve Communication					
5.	ERAMS is most secure and scalable platform					
6.	ERAMS can be easily integrated to other ERA system					

I. No.	Questions regarding the effectiveness of ERAMS	1	2	3	4	5
7.	ERA should improve the way works monitoring system (WMS)					
8.	(WMS) allows Monitoring of project's physical and financial progress on a regular basis					
9.	(WMS) allows analysis of common features leading to increase costs and delayed delivery of projects					
10.	The data entry to the System is quality					
11.	Unincorporated monitoring standards such as health, safety, and quality					
12.	The Performance Quality & System Management Directorate under ERA offers ERAMS training possibilities that are fulfilling					

C. Questions regarding the challenges in the Project Monitoring & Evaluation System in ERA

I. No.	Challenges in the Project Monitoring & Evaluation System	1	2	3	4	5
1	The monitoring & evaluation assessment approach is not advanced in information technology.					
2	lack of sufficient financial resources					
3	Inaccuracy/improper data gathering					
4	Biased Data feeding in the ERAMS system					
5	Delay in information (data) delivery from several units					
6	Poor planning, monitoring & evaluation of projects activities.					

I. No.	Challenges in the Project Monitoring & Evaluation System	1	2	3	4	5
7	Less engagement of stakeholders in the process of monitoring & evaluation of projects activities.					
8	Lack of expertise in this area					
9	failure to choose the proper key performance indicators					

D. Questions on how to improve the Project Monitoring & Evaluation System in ERA

I. No.	how to improve in the Project Monitoring & Evaluation System	1	2	3	4	5
1	ERA define monitoring & evaluation objectives and develop strategy for achievement of these objectives					
2	ERA define key performance indicators in the process of monitoring & evaluation of project activities.					
3	ERA has established the timeframe and data collection methods for monitoring & evaluation of project.					
4	ERA identify monitoring & evaluation roles and responsibilities					
5	ERA frequently identifies strengths and weaknesses, focusing on informational gaps in particular.					
6	ERA adopted modern monitoring & evaluation tools and techniques to improve the availability, quality and utilization of information					
7	ERA improves staff understanding of M&E functions through interaction, training, and implementation on the job.					
8	ERA make a plan for analysis and templates for monitoring & evaluation reports.					

I. No.	how to improve in the Project Monitoring & Evaluation System	1	2	3	4	5
9	ERA added a new features on the existing ERAMS system					
10	ERA standardized the monitoring & evaluation process					
11	ERA involve stakeholder in the process of monitoring & evaluation of projects					

Thank you very much for your valuable time!!!